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OPPORTUNITIES TO PROTECT INSTREAM FLOWS IN MASSACHUSETTS



Fish and Wildlife Service

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PUBLICATIONS IN THE "OPPORTUNITIES" SERIES

Title	Publication number	Status ^a
Instream Flow Strategies for Arizona	FWS/OBS-78/35	Available
Instream Flow Strategies for California	FWS/OBS-78/36	Available
Instream Flow Strategies for Montana	FWS/OBS-78/39	Available
Instream Flow Strategies for Nevada	FWS/OBS-78/40	Available
Instream Flow Strategies for New Mexico	FWS/OBS-78/41	Available
Instream Flow Strategies for North Dakota	FWS/OBS-78/42	Available
Instream Flow Strategies for South Dakota	FWS/OBS-78/44	Available
Instream Flow Strategies for Utah	FWS/OBS-78/45	Available
Opportunities to Protect Instream Flows in Alaska	FWS/OBS-82/33	Available
Opportunities to Protect Instream Flows in Nebraska and Kansas	FWS/OBS-83/02	Available
Opportunities to Protect Instream Flows in Minnesota and Iowa	FWS/OBS-83/07	Available
Opportunities to Protect Instream Flows in Georgia	FWS/OBS-83/20	Available
Opportunities to Protect Instream Flows in Michigan and Wisconsin	FWS/OBS-83/21	Available
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Opportunities to Protect Instream Flows in Maine	Biol. Rep. 85(9)	Available
Opportunities to Protect Instream Flows in Idaho, Oregon, and Washington	Biol. Rep. 85(10)	Available
Opportunities to Protect Instream Flows in Vermont and Pennsylvania	Biol. Rep. 86(1)	Available
Opportunities to Protect Instream Flows in Missouri		In preparation
Opportunities to Protect Instream Flows in Montana and Wyoming		In preparation
Opportunities to Protect Instream Flows in Colorado		In preparation
Hawaiian Water Rights and Instream Flows		In preparation

^aAvailable from the Western Energy and Land Use Team, U.S. Fish and Wildlife Service, 2627 Redwing Road, Fort Collins, CO 80526-2899.

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OPPORTUNITIES TO PROTECT INSTREAM FLOWS IN MASSACHUSETTS

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PREFACE

The Western Energy and Land Use Team, Division of Biological Services, U.S. Fish and Wildlife Service, has published a number of similar documents in the past. Information is now available for 30 Western, Midwestern, and Southern States.

In some reports, opportunities in each State are presented in a single document, but in several publications, reports on States from the same geographical region are combined. The combination of State reports presents an opportunity for easy comparison of specific programs. This is particularly useful because of the wide variety of instream flow protection programs or possibilities.

The primary purpose of this series of documents is to point out the opportunities in instream flow management that currently exist under State law so that planners and managers can anticipate development, plan appropriate programs, and evaluate the costs and benefits of certain courses of action. In addition, the reports are brief histories of the level of success of various State programs. The use of this information can result in a significant cost saving for planners and managers.

In summary, each document has an Introduction which discusses its purpose, uses, and limitations. Each document also has a separate information table that summarizes the contents for each State. It is hoped that the research represented in these reports will provide the kind of overview and preliminary evaluation that will ease the burden of State, local, or Federal planners and managers as they seek to meet their increasingly complex responsibilities.

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INTRODUCTION

"Opportunities to Protect Instream Flows in Massachusetts" provides the reader with a basic survey of State prerogatives and programs that may be used to protect the instream uses of water. Because of the interest and responsibilities of State fish and game agencies and other conservation organizations, most of these opportunities are related to fish and wildlife habitat. However, there are many other instream uses considered, including hydroelectric power production, recreation, navigation, downstream delivery, and waste load assimilation. The purpose of this document is to illustrate methods to protect these instream values within the context of existing rules and regulations.

Even though the author paid close attention to statutes, this document is not intended as a legal reference. It is designed to be a planning tool to survey current State programs, compare approaches to instream use protection, and index a preliminary evaluation of the costs and benefits of a wide range of programs. A summary table is provided that serves as an index to available opportunities (Table 1). This table may be the reader's most valuable guide to this report.

In using this report, the reader should be aware of its purpose and limitations. First, only a few of many possible opportunities are described. Initiative, judgment, and creativity should be exercised in dealing with any specific situation. Second, this report should be used only as a starting point. In any situation related to the acquisition of water rights, legal advice should be sought. This report should in no way be construed as a substitute for the opinion of a private attorney, attorney general, or agency counsel. Third, this report is neither a policy nor a decision document; it is simply a collection of opportunities that appear to have utility in a variety of situations.

A purpose of this booklet is to encourage cooperative and innovative thinking by all persons interested in instream flows for fish and wildlife, and watershed management at Federal, State, or local levels of government, as well as private individuals and wildlife organizations. Many talented people want to protect instream flows; their cooperation in a variety of approaches will be necessary to solve the problem.

In order to illustrate this variety of approaches Table 1 has been prepared as a special index to this report. This table describes each opportunity and shows the page number within the report on which a particular opportunity is presented. The table may be the most useful guide to the document because it allows all the opportunities to be quickly surveyed with attention focused only on the items of greatest interest.

No matter whether the report is read straight through or Table 1 is used as a guide, the opportunity descriptions themselves offer a means to quickly check the usefulness of a particular approach. The opportunity section is divided into several parts. First, there is a statement of general description. This is intended to quickly describe the opportunity giving an indication of the formal legal basis for the approach. Second, there is a background discussion. This presentation details and explains the legal or administrative basis for the opportunity. The background section also illuminates any special circumstances that might be encountered. Third, there is an example. Sometimes an opportunity exists but has never been used. When this is the case, no example is given. Usually, however, an example is provided. Finally, there is an evaluation. This evaluation makes clear the costs and difficulties that will be met in implementing a given approach.

Table 1. Opportunities to protect instream flows in Massachusetts.

Title	General description	Applicable situations
Interbasin Transfer Act (see page 8)	State must approve any significant transfer of water or waste water out of a basin and must specifically maintain reasonable instream flow in the donor basin.	Application made for approval of a transfer of water or waste water out of a basin.
Wetlands Protection Act (WPA) (see page 11)	An order of conditions must be issued before any activity can alter, dredge, remove or fill a wetland, stream, river, or floodplain.	Project proposed that alters a stream, river, wetland, or floodplain.
Wetlands Restriction Act (see page 14)	State can establish restrictive orders on wetlands, rivers, streams, and floodplains that can serve instream flow values.	Project or use proposed in restricted land or water.
State Licensing of Hydropower Facilities (see page 17)	State agency coordinates all State permitting agencies.	Proposed project to build a hydropower facility.
State Pollution Certification (see page 19)	State must certify water pollution discharges from hydropower facilities. State can deny certification or impose conditions based on flow impact.	Application made to the Federal Energy Regulatory Commission (FERC) for dam permit.
Comprehensive Planning (see page 21)	State may submit a comprehensive plan for maintaining stream flows to FERC.	Application made to FERC for dam permit.

Table 1. (Continued)

Title	General description	Applicable situations
Waterway Licenses (see page 22)	Licenses for construction, dredging, or filling in rivers, streams, and tidelands may be conditioned to protect instream flows.	Application made to dredge, fill, or construct in a waterway.
Water Pollution Control (see page 24)	Water quality permits are contingent on certain instream flows.	Dischargers apply for permit to discharge pollution into State waters.
Water Planning (see page 26)	State must implement plans for Statewide water use, these plans can influence decisions affecting water use.	
Scenic Rivers Program (see page 27)	Scenic and Recreational Rivers may be designated, which protects the river or stream, so designated, from alteration.	A river or stream has wild, scenic, or recreational qualities deserving of promotion.
Division of Fisheries and Wildlife, Acquisition of Lands and Waters. (see page 34)	Division may purchase land or water for wildlife sanctuaries, fishing areas, or for endangered species protection, all of which contribute to instream flow values within protected areas.	Land or water areas with special values are acquired to protect important areas for fish and wildlife.
Division of Fisheries and Wildlife, Alteration of Stream Flows. (see page 35)	Division may prosecute in tort individuals or entities that alter stream flows that injure fish or fish spawns.	Riparian diverts water from stream such that the river dries up in the dry season below point of diversion.

Table 1. (Continued)

Title	General description	Applicable situations
Low Flow Augmentation (see page 32)	Reservoir sites may be acquired and reservoirs may be built to supply water during low-flow periods for stream augmentation.	
Riparian Water Rights (see page 36)	Riparian rights can protect beneficial water uses and thereby protect flows.	Unreasonable use of water by an upper riparian.
Massachusetts Environmental Policy Act (MEPA) (see page 38)	Environmental review of projects in which State is involved in any manner. Requires mitigation of adverse impacts which can promote instream flow.	Applicant for license under any State program.
Environmental Protection Statute (see page 40)	Gives entities the ability to enforce environmental laws, ordinances and by-laws in court, which can assure that flows in the streams and rivers are protected to the maximum allowed by law.	State agency grants permit in violation of State law.
Intervening in Agency Adjudications (see page 41)	Gives any person the ability to become involved in agency adjudications, which helps assure full consideration of instream flow value issues.	
Conservation Restrictions (see page 42)	Individuals, government entities, and charitable organizations may acquire conservation restrictions in order to limit the use and development of water and land areas.	Landowner who owns riparian right is willing to sell an interest in that right.

Table 1. (Concluded)

Title	General description	Applicable situations
Zoning Act (see page 44)	Municipalities may limit the uses of land or water through their zoning authority, which can protect and promote instream flow values.	Town zones to protect floodplains.
Home Rule Powers (see page 46)	Municipalities may pass by-laws or ordinances to protect and promote instream flow values.	Town passes ordinance to limit development in wetlands.
Conservation Commissions (see page 49)	Municipalities can create conservation commissions to recommend purchase or protection of lands with high instream flow values.	Unprotected rivers within commissions region are targeted for protection.
Public Trust Doctrine (see page 50)	Navigable streams in Massachusetts are subject to State administration for the benefit of the general public.	A public trust stream or river that requires certain flow rates to support a public use may be protected from depletion.

OPPORTUNITIES TO PROTECT INSTREAM FLOWS IN MASSACHUSETTS

INTRODUCTION

Massachusetts is seen as the poor boy on the block when it comes to pristine streams and rivers in New England. This is partly due to the fact that Massachusetts was settled earlier than its neighbor States and now has one of the densest populations of any State in the Nation. Nonetheless, the rivers and streams of the State have been and continue to be an important resource. Historically, rivers and streams in Massachusetts were used as the motive force for a variety of mills and factories. In recent years, the importance of Massachusetts rivers and streams as recreation resources, aquatic habitats, and historical treasures has been emphasized by several severe droughts. These droughts, in combination with increased diversions to provide a water supply for the burgeoning population of the State, caused several rivers to virtually dry up. The increased demand on Massachusetts' water resources will challenge the ability of agencies to maintain instream flows sufficient to support quality aquatic and fisheries resources. This report presents an analysis of various opportunities for protecting instream flows within Massachusetts' legal and administrative structure.

In recognition of the intense and growing demand on its natural resources Massachusetts adopted an "environmental protection" amendment to its constitution, in 1972, that states in part:

The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and aesthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air, and other natural resources is hereby declared to be a public purpose (Act 49, § 179 Massachusetts Constitution).

This constitutional mandate could prove important in future attempts to preserve instream flows. In addition, Massachusetts enjoys a number of other laws that could prove valuable in preserving instream flows. A sampling of these statutes finds State laws designed to protect the navigability of waterways, to protect and improve water quality, to control and mitigate damage from floods, to regulate diversions out of river basins, and to preserve inland and coastal wetlands. Also, local entities are very important in the

legal structure of Massachusetts. Towns and cities possess several mechanisms that may prove valuable in protecting instream flows, such as the zoning power and the home rule power.

INTERBASIN TRANSFER ACT

Opportunity

Any person who proposes an action to cause a significant increase over the present rate of interbasin transfer of surface or groundwater, including waste-water, must have the proposed transfer approved by the Water Resources Commission (WRC) (MGLA Ch. 21, § 8B-8D, inclusive). The Interbasin Transfer Act (ITA), which became effective on March 8, 1984, requires that the commission find that a reasonable instream flow will be maintained in the river which the water is to be diverted before approval is given. Any approval of a transfer must be conditioned on preserving reasonable instream flows in the donor basin.

Background

The WRC has promulgated rules and regulations: (1) defining and delineating the river basins of the commonwealth, (2) establishing applications procedures, and (3) establishing criteria upon which the commission shall base its approval or disapproval of any proposed interbasin transfer (MGLA Ch. 21 § 8D).

In addressing an interbasin transfer the WRC must make the threshold determination of whether the transfer is significant, as only significant transfers are subject to WRC review. All increases of one million gallons per day or more over the present rate, are deemed significant and thus subject to WRC review. The commission uses the following criteria to determine if increases of less than one million gallons per day over the present rate are significant and thus subject to WRC review:

- (1) that the proposed action to increase over the present rate of interbasin transfer shall not facilitate an increase over one million gallons a day;
- (2) that the increase on an annualized basis would be less than one million gallons per day and is to be temporary, of short duration and for a purpose cited in the definition of insignificant increase;
- (3) that the additional flow to be withdrawn is in all cases less than five percent (5%) of the instantaneous flow as measured at an appropriate point of the donor river or tributary thereto;

- (4) that the ninety-five percent (95%) exceedance flow or the 7Q10 flow (average minimum consecutive 7 day low flow to be expected once in 10 years), when relied upon in a program of pollution abatement, will not be diminished;
- (5) that special resource values such as endangered species of plants and animals, an area of critical environmental concern, or a designated scenic river or area protected by Article 97 of the Amendments to the Massachusetts Constitution will not be adversely affected; and
- (6) the commission shall consider the cumulative impacts of all past, authorized or proposed transfers on streamflows in the donor basin (313 CMR § 4.04(4)).

Once the WRC has determined that a transfer is significant it must hold at least two public hearings before approving or denying a proposed interbasin transfer. One of these hearings must be held in the receiving community and one must be held in the donor community. The commission's decision may occur only after an Environmental Impact Report has been prepared, if needed, pursuant to the Massachusetts Environmental Policy Act (see section on MEPA below). This allows the commissioners to have the benefit of this important environmental review. The WRC encourages applicants to work with the WRC staff during a MEPA review.

After the public hearings and any MEPA review, the WRC approves or disapproves the transfer. The act requires that the following criteria be used to determine whether to approve or disapprove a transfer:

- (1) that all reasonable efforts have been made to identify and develop all viable sources in the receiving area of the proposed interbasin transfer;
- (2) that all practical measures to conserve water have been taken in the receiving area, including, but not limited to, the following:
 - (a) the identification of distribution system sources of lost water and, where cost effective, the implementation of a program of leak detection and repair;
 - (b) metering of all water users in the receiving area and a program of meter maintenance;
 - (c) implementation of rate structures that reflect the costs of operations, proper maintenance, and water conservation and encourage the same.

- (d) public information programs to promote water conservation, including industrial and commercial recycling and reuse; and
 - (e) contingency plans for limiting use of water during seasonal or drought shortages;
- (3) that an environmental review pursuant to section 61 and sections 62 to 62 H, inclusive, of chapter 30 has been complied with for the proposed interbasin transfer;
 - (4) that a comprehensive forestry management program that balances water yields, wildlife habitat and natural beauty on watershed lands presently serving the receiving area has been implemented; and
 - (5) that reasonable instream flow in the river from which the water is diverted is maintained, said reasonable instream flow shall be determined by the commission in making its determination of applicability of the proposed interbasin transfer of water.

All of the above criteria are important but the most important in protecting instream flows is number 5, which requires that reasonable instream flow be maintained in the donor river. The regulations promulgated by the commission provide that the commission shall take into consideration the following criteria in determining reasonable instream flow (313 CMR § 4.05(5)):

- (1) length of stream below the point of withdrawal;
- (2) effects on flood flows, intermediate flows, and low flows;
- (3) effect on groundwater and surface water elevations;
- (4) significance of indigenous and anadromous fisheries and effects of the proposed interbasin transfer on these fisheries;
- (5) significance of wetlands and dependent flora and fauna and effects thereon;
- (6) effect on water quality, recreational uses, aesthetic values, areas of critical environmental concern, and areas protected under Article 97 of the Amendments to the Massachusetts Constitution;
- (7) effect of established riparian uses and uses dependent on recharge from streamflow;
- (8) effect on hydropower production;

- (9) effect on other water withdrawals and undeveloped rights within the donor basin; and
- (10) effect on other instream uses.

The commission's action under the act is the final State administrative review for proposed projects involving the movement of water out of a donor basin. A proposed project may also be subject to such State laws as the Wetlands Protection Act, Chapter 91 permitting or the Wetlands Restriction Act, among others (see discussion of these acts below).

Evaluation

This act was passed due to the growing awareness that there is a need for thorough review of the impact of proposed transfers on the donor basin and to promote water conservation in the receiving areas. Instream flow and its related values will be protected and promoted in at least two important ways. First, the WRC must find that a reasonable instream flow will be maintained in the river from which water is to be removed. This directly promotes instream-flow in the donor river. Also, the criteria established by the WRC to determine reasonable instream flow can be used to protect virtually all instream flow values if applied vigorously. Secondly, the act requires the receiving basin to implement all feasible water conservation measures. This implicitly protects instream flows in both the donor and receiving basins, as the less water consumed the more that will stay in the rivers and streams.

This act certainly has the potential to be one of the prime protectors of instream flows in Massachusetts. The act was passed in 1984, and the regulations to implement the act were finally promulgated in July 1985, so it remains to be seen if the potential of the act is fulfilled.

Note: Much of the information for this section was received through personal communications with Charles Kennedy, Director, and Richard Thibedeau, Chief Planner, Division of Water Resources, Leverett Saltonstall Bldg., 100 Cambridge St., Boston, MA 02202.

WETLANDS PROTECTION ACT

Opportunity

No person can alter any bank, freshwater wetland, coastal wetland, beach, dune, flat, marsh, or swamp bordering on any body of water without complying with an order of conditions from a local conservation commission or the Department of Environmental Quality Engineering (DEQE) (MGLA Ch. 131, § 40 and 40A). These orders of conditions can be written to protect instream flows.

Background

The present Wetlands Protection Act (WPA) was passed in 1972. It combined the inland and coastal dredging and filling programs formerly embodied in the "Hatch Act" and the "Jones Act" (Dawson, 1978).

The WPA sets forth a public review and decision-making process by which activities affecting areas subject to protection are to be regulated in order to contribute to the following interests:

- public and private water supply
- ground water supply
- flood control
- storm damage prevention
- prevention of pollution
- protection of land containing shellfish
- protection of fisheries (MGLA Ch. 131, § 40)

The areas subject to protection under the WPA are the following:

- (1) any bank, the ocean,
any freshwater wetland, any estuary,
any coastal wetland, any creek,
any beach, any river,
any dune, any stream,
any flat, any pond,
any marsh, or any lake;
or any swamp
- (2) land under any of the water bodies listed above;
- (3) land subject to tidal action;
- (4) land subject to coastal storm flowage; and
- (5) land subject to flooding.

The activities subject to regulation under the WPA are as follows:

- (1) any activity, actually within the areas subject to protection, that will remove, fill, dredge or alter that area;
- (2) any activity within 100 feet of the areas subject to protection (termed the "buffer zone") if, in the judgment of the issuing authority, it will alter a protected area; and
- (3) an activity outside of the buffer zone if and when that activity actually alters an area protected under the WPA (310 CMR § 10.01(2)).

A person who wants to perform any work within a protected area must file a notice of intent and an Environmental Data Form, which describes the project, with the local conservation commission and the appropriate DEQE regional office.

Within 21 days of the receipt of the notice of intent the local conservation commission must hold a public hearing on the proposed activity. Once a hearing has begun the commission may continue it for good cause to a specific date announced at the first session of the hearing. This is commonly done because of the need for additional tests or further submission of information to properly evaluate the project. Both the original hearing date and time and any subsequent hearing dates and times must be published in local newspapers. All costs of these publications are borne by the applicant.

Within 21 days of the closing of the hearing the local conservation commission must issue a decision. If the commission finds that the activity will significantly affect any of the interests protected by the WPA an Order of Conditions will be issued. No work can take place until the order is recorded in the appropriate registry of deeds or land court and until the 10-day period for appeal to the DEQE has elapsed. If an appeal to DEQE is filed, work is postponed until the appeal is resolved. Further, the DEQE regulations require that if an activity or any portion of an activity cannot be conditioned so as to avoid adverse impacts, that activity or portion of the activity must be prohibited (310 CMR § 10.05). This prohibition is subject to constitutional limitations as to takings.

Any act or failure to act by a local commission can be appealed to the DEQE, either by the applicant, the owner of the land, an owner of land abutting the land on which work is to be done, any 10 residents of the city or town where the work is to be done, any person aggrieved by the order, or the DEQE itself within 10 days of the local commission's action or failure to act. The nature of the appeal is de novo. The statute mandates that DEQE make a decision within 70 days, although, failure to meet this deadline does not constitute automatic approval. The DEQE will either approve the local commission's Order of Conditions or issue a Superseding Order of Conditions. Any party to the appeal may request a formal hearing on the Superseding Order of Conditions within 10 days of their issuance.

The orders are generally good for three years and may last up to five years if special circumstances warrant. An order may be extended for one or more three-year periods.

Evaluation

Massachusetts, with the passage of the Hatch and Jones Acts in the early sixties, was the first State to provide comprehensive protection for wetlands. These two acts were repealed and then consolidated in 1972, with passage of the WPA. The major change was the lodging of original jurisdiction with local conservation commissions, with possible review by the DEQE.

There are two keys to the statute. The first is its definition of wetlands and the second is the interests the act is designed to promote. The WPA defines wetlands very broadly so that it covers not only those areas traditionally thought of as wetlands, but rivers, streams, and floodplains as well. The interests promoted are more narrowly drawn but still they protect some very important instream flow values. Even though instream flow itself is

not set out specifically for protection, the prevention of drainage of wetlands and the prevention of alteration of stream banks are just two examples of ways the WPA indirectly protects instream flow.

Even though the WPA and its predecessor statutes have been in existence for over 20 years there are still several areas of controversy. There is sharp disagreement as to whether the DEQE or a local conservation commission can prohibit an activity under the act. The DEQE has interpreted the statute to require prohibition where an activity cannot be conditioned to prevent damage to a protected interest. Another area of controversy is whether the DEQE or conservation commission can impose conditions on activities outside of the buffer zone, when those activities affect a protected area. Again, the DEQE has interpreted the statute broadly to allow it to regulate activities outside of the buffer zone. Obviously, the power to prohibit activity on private property is subject to constitutional considerations. The DEQE's interpretations have not yet been tested in the courts.

Thousands of hearings are held each year under the WPA and it is estimated that only about 10% are appealed to the DEQE. Of this 10%, only a handful have been heard by a court. This is most certainly because of the extensive forum provided by the series of local and State hearings, which increases the possibility for compromise and settlement (Dawson 1982). The WPA, due to its broad scope and familiarity, has been and will continue to be one of the prime protectors of instream flow values in the State.

Note: Much of the information for this section was received through personal communication with Ray Marino, Senior Land Use Planner, DEM, 100 Cambridge St., Boston, MA 02202.

WETLAND RESTRICTION ACTS

Opportunity

The Department of Environmental Quality Engineering (DEQE) pursuant to the Inland Wetland Restriction Act (IWRA) (MGLA Ch. 131 § 40A) and the Coastal Wetland Restriction Act (CWRA) (MGLA, Ch. 130 § 105) may restrict, regulate, or prohibit the dredging, filling, removing, polluting or altering of inland and coastal wetlands. Due to the breadth of the definition of wetlands a restriction under either of these acts provides an effective means of protecting a variety of instream flow values.

Background

There are some similarities between the WPA (Wetlands Protection Act), the CWRA, and the IWRA. The area of coverage of the CWRA and the IWRA taken together is essentially the same as that of the WPA. Wetlands include roughly every lake, pond, stream, river, estuary, areas traditionally thought of as wetlands, the banks bordering the bodys of water listed above, and any land subject to flooding.

The values protected by the CWRA and the IWRA are virtually identical to those protected by the WPA. The values that the WPA, the CWRA, and the IWRA protect are public safety, private property, fisheries, water resources, and floodplains.

The CWRA and the IWRA allow DEQE to protect the values stated in the acts by adopting orders that regulate, restrict, or prohibit dredging, filling, removing, or otherwise altering or polluting inland and coastal wetlands. The CWRA and the IWRA allow DEQE to protect floodplains by adopting orders that establish encroachment lines along any waterway or flood-prone area. Once these lines are established no encroachment or obstruction can be placed beyond the lines without the authorization of the DEQE. Such encroachment lines must be mapped, designated, and recorded as inland wetlands.

An order that establishes restrictions or encroachment lines may only be adopted by the DEQE after a public hearing, and after the city or town in which the restrictions or encroachment lines are found has been given an opportunity to approve or disapprove the order. Even if the city or town disapproves, the DEQE can still act unilaterally, however, the DEQE is not likely to adopt a restriction without public support.

Upon adoption of an order a certified copy together with a map of the affected lands are sent to each assessed landowner. The same is also sent to the clerk and board of assessors of each city and town in which the lands are located. Additionally, a copy of the order, the map, and a list of the assessed landowners are recorded in the registry of deeds.

Any person having an ownership interest in land affected by such an order may, within 90 days after receiving notice, petition the superior court to determine if the restriction deprives him of the practical uses thereof and therefore becomes a taking without compensation. If a taking is found the order is made of no effect as to that parcel of land. The statute provides that this is the exclusive method for determining the issue of a taking. Also, if a taking is found, the State may use its power of eminent domain to take the fee or some lesser interest, such as a conservation restriction, in the land.

Wetland restrictions may be amended or repealed by the same process described for adoption.

Example

Coastal and inland wetland restriction orders have been moderately controversial. In the first ten years of existence, approximately 1968-1978, over 60 of the restrictive orders have been appealed to superior court for determination of the taking issue. It was not until 1981, however, that one of these cases made it to the highest court of Massachusetts, the Supreme Judicial Court.

The case of Moskow v. Commissioners of Environmental Management [427 N.E.2d 750 (Mass. 1981)] provides an example of the workings of the wetland restriction acts. Moskow owned seven acres in the densely developed town of Newton. The State's restrictive order limited use of about four acres to recreation, wharves, other boating use, and utility lines. The trial court determined that these restrictions constituted a taking of Moskow's land. The Supreme Judicial Court reversed. The court stated that in determining a taking you must look at the nature and extent of the interference with the rights in the parcel as a whole. In this case, Moskow still had undiminished use of three acres and some residual use of the restricted four acres, therefore, there was no taking. The court went on to state, "[g]overnment regulations like the wetlands restrictions at issue in this case may deprive an owner of a beneficial property use - even the most beneficial such use - without rendering the regulation an unconstitutional taking" [Moskow v. Commissioners of Environmental Management, 427 N.E.2d 753]. This is a liberal statement of the taking issue and is a clear signal by the court that wetland restrictions may severely restrict private property to protect the important public interest in maintaining wetlands.

Evaluation

The IWRA and the CWRA differ greatly from the WPA. The WPA is a reactive statute that comes into play only after a development or alteration of a wetland is proposed. Certainly, a developer, in planning an activity in a wetland will take into consideration that he must comply with the WPA, but the initial planning is left to the developer and therefore a lack of coordination may result. The IWRA and the CWRA allow the State to take the initiative in protecting wetlands and floodplains, which creates the potential for coordinated protection. Under the wetland restriction acts the State can look at a whole river system and place restrictions to protect the most important wetlands.

In practice, coastal and inland wetland restrictions generally permit very few activities in restricted areas. Typically, they permit docks, boat channels, foot bridges, floats, utilities, recreation, driveways (to unrestricted land of the same owner where other reasonable access is not available), and maintenance dredging (Dawson 1978).

Placing restrictive orders on wetlands adds considerably to the State's ability to protect wetlands. First, the program requires maps on which wetlands are designated. These maps provide a valuable land-use tool to communities and developers. Second, all owners affected by the order are notified, information meetings and public hearings are held, and the staff is available to delineate the boundaries of wetlands on any individual's property. Third, the order and maps are recorded in the registry of deeds and, for registered land, in the land court, so that all future prospective buyers or developers are put on notice that a restricted wetland is on the property. These three factors provide strong protection for wetlands by deterring violations and by adding strength to the enforcement tools available to local communities and the Commonwealth (Hardin 1985).

Inland wetland restrictions have not been used very extensively. One commentator suggested that the reason was budgetary constraints (Dawson 1978). Wetland restrictions have been used extensively in a large percentage of coastal areas. At this time, the DEQE and the Executive Office of Environmental Affairs (EOEA) are seeking supplementary funds to promote this program (Hardin, M., Acting Director, Division of Wetlands and Waterways Regulation, Dept. of Environmental Quality Engineering; letter to Elizabeth Kline, 18 July 1985).

PERMITTING OF HYDROPOWER GENERATING FACILITIES

State Licensing

Opportunity. The Massachusetts Energy Facility Siting Council (EFSC) is the lead agency for hydropower licensing. The EFSC has authority to coordinate the total State permitting process, and serves as a last resort appeals body in cases of burdensome agency rulings (MGLA Ch. 164, § 64H½). This presents the opportunity for citizens, local governments, and State agencies to lobby the EFSC and the other permitting agencies to deny a permit or to impose conditions on facilities that may unduly impair water quality or supply.

Background. In 1979, legislation was passed to grant the EFSC authority to coordinate and streamline the licensing procedure for all hydropower projects in the commonwealth. The key features of the new licensing procedures are as follows:

1. Notification

The developer prepares a preliminary notification form with help from the EFSC. This form is circulated to all appropriate Federal, State, and local agencies. This form substitutes for the "Notice of intent" required to be filed under the Wetlands Protection Act. If the project is such that an Environmental Notification Form (ENF) is required under MEPA, then the ENF plus a hydropower supplement serves as the preliminary notification form.

2. Prelicensing conference

Within 30-40 days after filing, a prelicensing conference is held at the project site. The developer describes his project and the agencies respond with questions, concerns, and comments.

3. Statement of agency requirements

Within 15 days after the prelicensing conference, all State and local agencies are required to submit in writing the extent of their jurisdiction over the project, what additional information they will need, and what additional forms or applications the developer must file.

4. Deadlines for agency action

Once a developer has complied with any requests in 3 above, the agency has a certain time period set by the EFSC to act. This period cannot exceed 90 days.

5. Appeals to the EFSC

If an agency fails to act in time or imposes burdensome conditions on a project, the developer may appeal within 20 days to the EFSC. The EFSC must decide the appeal within 90 days after it is filed. Any decision on appeal must be based upon balanced considerations of energy needs, cost, and environmental impacts. No consideration need be given to the original agency's decision. The EFSC's decision on appeal is a final agency action, which can be reviewed by the courts.

There are a number of different entities that may permit or license activities in a hydroproject. Among these are the DEQE, Division of Wetlands and Waterways under the WPA, Chapter 91 and the Inland and Coastal Wetland Restriction programs; and the DEQE, Division of Water Pollution Control under the water quality certificate required by Federal law; and the EOEA under MEPA (each of these programs is described in its own section).

Evaluation. The whole process of granting a license under the EFSC's program presents numerous opportunities for advocates of instream flow to lobby for their interest. As each agency determines what conditions to include in the permit, effective lobbying may potentially assure that instream flow values are protected when construction begins.

The EFSC has two functions. The first is to coordinate and facilitate the permitting process in all the different agencies that may have jurisdiction. The EFSC provides advice and counseling to the developer and tries to mediate problems between the developer and the agencies. The second is to hear and decide appeals from developers that have been aggrieved by an agency action (W. S. Febiger, Environmental Analyst/Hydropower Licensing Coordinator, Energy Facilities Siting Council; pers. comm., 25 March 1985). The EFSC must decide, in this appeal process, whether to uphold the conditions put on the project by the permitting agencies. The EFSC does not have authority to put on conditions more stringent than those put on by the permitting agencies. It only has power to make the conditions less burdensome based on a balancing of energy needs, costs, and environmental impact. During this appeal process is the only time that lobbying of the EFSC may be fruitful. Advocates of instream flow should be prepared to lobby vigorously for maintenance of any permit conditions that will preserve instream flow. No developer has, as yet, appealed to EFSC, so it is unclear how the balance between energy needs, costs, and the environment will be struck.

Many States, particularly Vermont and several western States, have run into preemption problems with the Federal Energy Regulatory Commission (FERC) in permitting of hydropower projects. Massachusetts has not encountered this problem because it has not attempted to supersede Federal licensing requirements by any of its permitting statutes.

Generally, in Massachusetts, the hydropower projects to date have not been new projects, but have instead been redevelopment projects. The dams are already in place, so the opportunity presented is that, in relicensing, instream flow needs can be reconsidered and perhaps increased from those provided when the dam was first built. Whether this happens depends on the interplay between the Federal and State licensing agencies, the developer, and interested advocates of instream flow.

State Pollution Certification

Opportunity. All applicants for projects that will result in "discharges" must obtain certification from the State that such discharges will comply with the Federal Clean Water Act. Since hydropower facilities often affect the regularity and magnitude of downstream flows, the water quality downstream of a dammed waterway may well be impaired by a new or enlarged facility. Massachusetts can use the certification process to insure that adequate stream flows are maintained on a river used for hydroelectric generation (33 U.S.C. § 1341).

Background. Section 401(a)(1) of the Federal Clean Water Act (33 U.S.C. § 1341(a)(1)) provides that:

Any application for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of [the effluent limitation requirements of the Act] ...No license or permit shall be granted if certification has been denied by the State...

The final sentence of section 401(a)(1) in conjunction with the legislative history, which suggests that Congress intended that all dams be certified, compels FERC to obtain State certification before issuing a license. This provides an important mechanism for State input, since States retain the rights to set more stringent discharge requirements than those provided in the Federal act and to force licensees to demonstrate compliance with these standards [see Power Authority of State of New York v. Department of Environmental Conservation 379 F. Supp. 248, 249 (N.D.N.Y. 1974)].

If the State does certify a particular project, section 401 provides enforcement mechanisms to ensure compliance with the certification conditions. If Massachusetts determines that a facility is not complying with water quality standards, whether due to changes in construction design, effluent standards, or the characteristics of the water, FERC may be required to either revoke or suspend the project's license until such time as compliance is reestablished.

In Massachusetts, the Division of Water Pollution Control has established a base flow of 7Q10 as the assumed flow for determining the amount of various pollutants that may be discharged and still meet Massachusetts water quality standards. Therefore, under State certification a hydropower facility must meet the 7Q10 standard to maintain their certification, unless the State has certified the project at a lower level.

Example. Massachusetts has not had extensive experience with the certification process. Therefore, a recent licensing episode in Maine provides an example of the potential utility of this process for preserving instream flows.

The East Machias Project, involving the redevelopment of an existing dam, was planned on one of Maine's Atlantic salmon rivers. Although the project did not involve impoundment of water, Maine officials determined that the project would cause great harm to salmon populations and would impair other recreational values. After carefully scrutinizing the applicable U.S. Environmental Protection Agency regulations and statutes pertaining to the certification process, Maine Department of Conservation officials concluded that section 401 was designed to protect more than the actual physical and chemical quality of a stream. The State found that designated uses of a waterway (e.g., salmon propagation) must also be considered under the section 401 process. After determining that the East Machias Project would have an unreasonable impact on designated stream uses, Maine denied a section 401 permit to the project.

In the absence of State certification, FERC was faced with a dilemma -- either defer to the State and deny the permit, or accept the application and risk litigation, which could result in the judicial expansion of State power. FERC managed to sidestep the crucial issue of the scope of section 401 by ruling that, under that provision, no license can be issued without State certification. FERC dismissed the application without prejudice, allowing the applicants to reapply should the State be persuaded to certify the project.

Thus, FERC implicitly accepted the State position, but managed to prevent the case from establishing a legal precedent for expanding the scope of section 401. Nevertheless, other States have followed Maine's lead and have considered the potential impact of a hydroelectric project on instream uses before granting certification. Although Maine was more concerned about effects of salmon migration than preserving instream uses, the approach is applicable to instream flow considerations.

Evaluation. The section 401 permitting process creates a number of mechanisms for States to preserve instream flows. The Division of Water Pollution Control (DWPC) could adopt the approach of Maine and take an expansive look at the potential impacts of a project before issuing a State certification. Alternatively, the DWPC may withhold certification until conditions are imposed on the licensee to provide for sufficient instream flow to adequately assimilate existing pollution discharges. Regardless of the method of implementation, the section 401 strategy is vital in that it provides the opportunity for a State to reassert some of the control over dam licensing that has been divested from the State by the courts.

Comprehensive Planning

Opportunity. A State may submit a comprehensive plan to FERC for improving and developing its rivers and streams. This plan may provide for maintenance of instream flows on many waterways. FERC may adopt all or part of such a plan in determining what conditions to place on a license (16 U.S.C. 803).

Background. Section 10(a) of the Federal Power Act [16 U.S.C. 803(a)] provides that all licenses shall be issued on the condition that:

the project adopted, including the maps, plans, and specifications, shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, and for other beneficial public uses, including recreational purposes; and if necessary in order to secure such plan the Commission shall have authority to require the modification of any project and of the plans and specifications of the project works before approval.

The key phrase in this provision is "a comprehensive plan." The statute provides that the commission's "best judgment" determines whether the project's maps and specifications are properly adapted to the comprehensive plan, but does not specify how the plan itself is to be formulated. Cases decided under this provision describe the criteria to be weighed under such a plan, but no case considers the extent to which States can formulate and submit a comprehensive plan, or whether a State plan is binding on FERC (Arnold 1983).

Example. The State of Maine has been at the forefront of the effort to use section 10(a) as a means of injecting State input into the Federal licensing system. Maine has submitted a comprehensive plan to FERC, titled and structured to conform to the statute. The plan provides an assessment of hydropower potential in Maine and specifies which rivers and watersheds should be developed and which should be preserved.

The States hope to bind FERC to these plans under the theory that FERC's failure to formulate its own plan allows State and local entities to fill the void. Thus far, however, FERC denies that it is bound by Maine's plan,

asserting that the "comprehensive plan" consists of whatever the agency in its sole discretion deems prudent (on a case-by-case basis). The issue has not yet been resolved. Maine is organizing a lobbying effort to amend the Federal Power Act to provide for a structured system of State input. Such a bill has been introduced by Senator Mitchell of Maine in both the 1984 and 1985 sessions. Although the Federal Power Act has not often been amended, many States are concerned about their lack of input into FERC licensing decisions, and the time may be ripe to address this troublesome issue.

Evaluation. Like the strategy discussed above regarding State pollution certification, this approach offers a vital opportunity for Massachusetts to force Federal licensing actions to conform to the policies and statutes of the State. In particular, the comprehensive planning approach would allow broad State input into decisions regarding the imposition of instream flow maintenance conditions on hydroelectric licensees. Although it seems improbable that Massachusetts could eventually dictate to FERC which streams may be used for power generation, comprehensive planning could allow States to place more stringent instream flow requirements on hydroelectric facilities.

WATERWAY LICENSES

Opportunity

The Department of Environmental Quality Engineering (DEQE), under the Waterway Licensing and Permit Program (Chapter 91), regulates all construction, excavation, dredging, and filling activities in formerly filled and existing tide-flowed lands, great ponds, and certain rivers and streams in Massachusetts (MGLA, Ch. 91, inclusive). In granting a license or permit under this program the DEQE is required to safeguard the public trust rights in tidelands that are under its jurisdiction. In addition, the DEQE may condition any permit or license to protect and promote instream flow on nontidal rivers subject to its jurisdiction (C. Natale, Senior Waterways Engineer, Division of Wetlands and Waterways Regulation, Dept. of Environmental Quality Engineering; pers. comm., 18 Jan. 1985).

Background

The DEQE, operating through its Division of Wetlands and Waterways Regulation, is authorized by Chapter 91 of the Massachusetts General Laws to issue licenses or permits for construction, dredging and filling in the areas under their jurisdiction.

The DEQE's jurisdiction under the Waterway Licensing and Permit Program includes five areas:

- (1) private tidelands, this includes land between the mean high water mark and the mean low water mark, or 1650 feet seaward of the mean high water mark, which ever is less, if privately owned;
- (2) Commonwealth tidelands, the land seaward of the low water mark out to the three mile limit;

- (3) the nontidal portions of the Merrimack River, the Connecticut River and a portion of the Westfield River extending to the town of Agawan;
- (4) from the highwater mark of any other river or stream for which public funds have been expended for stream clearance, channel improvement, or flood control; and
- (5) from the natural high water mark of any great pond or lake which contains 10 or more acres of surface area.

If a person determines that his project is subject to Chapter 91 he must submit an application to the DEQE. Accompanying the application must be an Order of Conditions issued under the Wetlands Protection Act and a certificate of compliance from the municipal clerk that the project is in compliance with all local ordinances and by-laws. Additionally, if review by the Massachusetts Environmental Policy Act (MEPA) is required, no license will be issued until this process is complete. Once the application is submitted the applicant publishes a public notice, which commences a 45-day review and comment period for the public, local governments, and other State agencies (Natale, pers. comm.).

In deciding whether to issue a license in tidelands or great ponds, the DEQE is required to consider the following: (1) that the project has a proper public purpose, (2) that the project provides greater public benefit than public detriment to the rights of the public, and (3) whether the project is consistent with the Coastal Zone Management policies. The public rights that the DEQE must protect are the public trust rights of fishing, fowling, and navigation.

In deciding whether to issue a license in inland waters, there are no specific interests that must be protected as with tidelands. In these instances, the DEQE acts more as a check agency on the Wetlands Protection Act (WPA) and MEPA processes. The DEQE has the authority to condition the license or permit beyond what has been required under either MEPA or the WPA. This would probably only happen, however, if new important information came to light during the 45-day review and comment period. The DEQE will normally condition the license consistent with the WPA and MEPA conditions.

A denial of a license is not appealable to the agency. A person aggrieved by the grant of a license is entitled to an adjudicatory hearing pursuant to Massachusetts General Law Chapter 30A. The denial of a license or the decision in an adjudicatory hearing may be reviewed in the superior court.

Evaluation

On inland streams and rivers the Chapter 91 program probably does not provide protection much beyond that provided by the WPA and MEPA, however, it is still important for advocates of instream flow to participate in the review and comment process. The DEQE has the authority to condition licenses and

they could condition a license to maintain instream flow if a compelling reason was provided. Also, the DEQE role of providing a check on the WPA and MEPA processes can provide an opportunity to protect instream flow values.

Tidelands and great ponds are protected more affirmatively than inland streams and rivers under Chapter 91. The DEQE is required to protect the public trust rights of fishing, fowling, and navigation in these waters. In protecting these rights, especially fishing and navigation, instream flow is an important consideration. If instream flows are depleted then fishing and navigation are lost. Therefore, protecting and preserving these public trust rights also serves the purpose of protecting instream flows.

WATER POLLUTION CONTROL

Opportunity

Any person who intends to discharge pollutants into waters of the State must obtain a permit from the Division of Water Pollution Control within the Department of Environmental Quality Engineering. Such a permit will be issued, subject to terms and conditions, if the proposed discharge will not reduce the quality of the receiving water below a certain level dictated by the stream classification. Since water quality is directly related to the amount of water in a stream, issuance of waste discharge permits is often contingent on maintenance of streamflow (MGLA Ch. 21, §§ 26-53, inclusive).

Background

Massachusetts has implemented the Federal Clean Water Act by establishing a Statewide permitting system for persons who discharge pollutants into State waters (MGLA Ch. 21, § 43). Pursuant to the authority established above, State waters were divided into six categories. State inland waters were divided into the following categories: Class A - those waters designated for public water supply; Class B - those waters designated for the protection and propagation of fish, other aquatic life, and wildlife and for contact and noncontact water recreation; and Class C - those waters designated for the protection and propagation of fish, other aquatic life, and wildlife and for noncontact water recreation. The State's coastal and marine waters were divided into the following categories: Class SA - waters designated for the protection and propagation of fish, other aquatic life, wildlife, contact and noncontact water recreation, and shellfish harvesting without depuration; Class SB - the same uses as Class SA except shellfish harvesting must be with depuration; and Class SC - waters designated for the protection of fish, other aquatic life, wildlife, and noncontact recreation.

Almost all inland waters are presently classified as Class A or Class B and most coastal waters are classified as Class SA or Class SB. The classification, however, does not tell the whole story about the quality of the waters. The DWPC has established antidegradation provisions that provide further protection of the water quality (314 CMR § 4.04). The first of these provisions provides that if a river, stream, or segment thereof has water

quality better than that required by its classification, no discharge may be permitted that would degrade these waters unless a variance is granted pursuant to the procedures of the Massachusetts Water Quality Standards. A second provision protects streams in which the flow is presently too low, either seasonally or year round, to assimilate further discharges. No additional discharges may be made to these rivers without going through the variance procedure mentioned above. The last provision allows the DWPC to classify waters as "National Resource Waters." These are Class A, B, SA, or SB Waters, "... which constitute an outstanding National resource as determined by their outstanding recreational, ecological and/or aesthetic values." (314 CMR § 4.04(4)). Once designated, these waters cannot be degraded and are not subject to the variance procedure. New discharges are prohibited and all present discharges must be eliminated unless the discharger is able to show that: (1) alternative means of disposal are not reasonably available or feasible, and (2) the discharge will not affect the quality of the water as a National resource. Presently, three rivers and all waters adjacent to the Cape Cod National Seashore are classified as National Resource Waters.

The most important function that the DWPC performs in relation to instream flow is its authority to establish the most severe hydrologic condition at which water quality standards must be met in inland waters. The regulations set the hydrologic conditions as the "...average minimum consecutive seven day low flow to be expected once in 10 years." (314 CMR § 4.02(3)). This is the so-called "7Q10" rate. This rate serves as the foundation for estimates of the amount of treated waste that can be assimilated by each waterway.

Evaluation

The key to relating waste assimilation to instream flow lies in the estimation of drought flow conditions. It is important that the 7Q10 base flow be accurately estimated. If it is overestimated an artificially high number of waste discharges will be authorized, resulting in overutilization of the stream and possible water quality standard violations. In the context of instream flow values, overestimation of the 7Q10 rate may lead to excess use of the stream and encourage overdevelopment along the banks. An accurately estimated 7Q10 rate can ensure that instream flow will be maintained, at least at a low level.

An additional mechanism for protecting instream flow is provided by the antidegradation provisions of the water quality standards. The National Resource Waters designation is especially important because it provides almost complete protection from degradation. The other provisions, though not providing complete protection, provide some protection, as a variance must be issued before a polluter may discharge into the waters.

WATER PLANNING

Opportunity

The Water Resource Commission (WRC) is mandated to develop a Water Resource Management Policy framework, develop and periodically update comprehensive Water Resource Management plans for river basins, and develop water allocation criteria that take into account demographic, hydrologic, and environmental characteristics (MGL Ch. 21A, § 8B). In performing these functions the WRC could identify and integrate instream flow needs.

Background

The Water Resource Management Policy framework is embodied in the Massachusetts Water Supply Policy statement adopted by the Water Resources Commission in 1978 and most recently updated in August 1984.

The Massachusetts Water Supply Policy Statement (1984 update) consists of an overview, supply management policies, demand management policies, administrative management policies, and a conclusion. The supply management policies preserve primary responsibility at the local level, while recognizing that State laws, policies, and programs will exercise a strong influence on local plans. The demand management policies provide for a Statewide demand management program to increase public sensitivity to the importance of water, while encouraging supplier and user efficiencies. The administrative management policies provide that State administrative responsibilities for water supply should be centralized within the Water Resources Commission Executive Office of Environmental Affairs, the body responsible for coordinating and developing Statewide water supply planning and policy issues.

The Water Resources Commission has adopted Water Resources Management Planning Regulations (313 CMR 2.00) that establish a framework for the development of comprehensive water resources plans for the 27 river basins of the Commonwealth and for development of a Statewide water resources management plan.

The Department of Environmental Management's Division of Water Resources is implementing the planning process outlined in the regulations, which provides that basin plans be based on local, regional, and State assessments of water needs and resources, and be in conformance with the Massachusetts Water Supply Policy Statement.

The regulations provide that one of the elements of information required in each plan is a discussion of "...the effectiveness of structural and non-structural means of flood damage reduction and low-flow augmentation and maintenance and actions needed if such measures are not effective."

The regulations further state that "the Water Resources Management Plans developed by the Commission shall describe measures proposed for protection of lands subject to flooding, wetlands areas, groundwater resources, fish and wildlife; for assurance of recreational opportunities; adequate supply and pressure for residential, institutional, commercial, municipal, and industrial users; and the other beneficial uses of water resources."

The Massachusetts legislature is currently considering legislation entitled the Massachusetts Water Management Act, which provides that the commission shall adopt principles, policies, and guidelines necessary for the effective planning and management of water use and conservation in the Commonwealth. The Department of Environmental Quality Engineering shall adopt regulations to establish a mechanism for managing ground and surface water in the Commonwealth as a single hydrological system and ensuring, where necessary, a balance among competing water withdrawals and uses (C. F., Kennedy, Director and Chief Engineer, Division of Water Resources, Boston, Ma; pers.comm.,1985).

Evaluation

Recent changes in the duties of the WRC have increased its authority in developing and implementing water resource policies and plans for the Commonwealth. The WRC is specifically required to develop river basin plans and criteria for water allocation. In order to ensure that instream flow values are included in this planning process, proponents of instream flow must become involved in the process of implementing these new duties of the WRC. For only by asserting these values at this early stage can they be made a part of the overall water plan for the State.

Any policy or criteria developed by the WRC will have a profound effect on instream flow values because it will be the basis for planning at both the State and local level. If instream flow values are included in WRC planning, it might be a catalyst for other laws that would protect instream flow values. These policies are presently being implemented, so no examples are available to show their effectiveness or lack thereof.

Note: Much of the information for this section was received through personal communication with Elizabeth Kline, Office of Environmental Affairs and Richard Thibedeau, Division of Water Resources, 100 Cambridge St., Boston, MA 02202.

SCENIC RIVERS PROGRAM

Opportunity

The commissioner of the Department of Environmental Management (DEM) pursuant to the Massachusetts Scenic and Recreational Rivers Act (MGLA Ch. 21, § 17b), may issue orders protecting the scenic and recreational rivers of the Commonwealth. These orders may be tailored specifically to protect instream flow values.

Background

The Massachusetts Scenic and Recreational Rivers Act gives the DEM the authority to issue orders to regulate dredging, filling, polluting, and removing or otherwise altering the river, stream, and adjacent land up to 100 yards from its natural bank, of any river or stream designated as scenic or recreational under this act (MGLA Ch. 21, § 17b).

This act was passed in 1971 in recognition of the need to protect the Commonwealth's irreplaceable river resources. It took several years before the DEM devised a plan for implementing the act. This plan is the Scenic Rivers Program (SRP).

The delay in implementing the program is related to the nature of Massachusetts' rivers. First, there are very few rivers or streams in Massachusetts that do not run principally through private lands. Therefore, the protection of these rivers has traditionally been in the hands of the riparian landowners. Additionally, deed restrictions in Massachusetts do not allow public access. Second, the Commonwealth's rivers are unlike the rivers in the West where the methods and criteria for designating scenic rivers were developed by the Federal government. This was succinctly demonstrated in a 1976-1977 Federal study of Massachusetts' rivers. This study found that all of the Commonwealth's rivers failed the Federal test of no impoundments, remoteness, and absence of development.

In answer to these problems and in order to implement the purposes set out by the legislature in the act the DEM developed and initiated the SRP, in 1977. Under the SRP the initial selection of rivers to be studied for potential inclusion was determined by a public nomination process. This resulted in 180 rivers and streams or segments thereof being nominated as scenic rivers. This was one means DEM had of being assured of public support and addressing the first problem noted above.

Since the criteria developed for western rivers would not work in Massachusetts, DEM had to develop its own criteria. This resulted in the following five classifications (Preston 1982):

Natural Rivers and Streams

Those rivers or streams or segments of rivers or streams which are free of impoundments, generally inaccessible except by trail, with both shorelines and vistas from the river free of development or human alteration. These rivers and streams should be examples of Massachusetts river ecosystems in their natural state.

Scenic Natural Landscape Rivers and Streams

Those rivers or streams or segments of rivers or streams of high scenic river quality which are accessible in places by road or railroad with both shorelines and vistas from the river relatively free of development or human alteration. Each river or stream should have one or more outstanding scenic or natural features which qualifies it as an outstanding scenic resource of the Commonwealth.

Scenic Cultural Landscape Rivers and Streams

Those rivers or streams or sections of rivers or streams of high scenic quality which are accessible in places by road or railroad whose shores are relatively free of development or human alteration except for pastoral and/or scenic cultural features. Said rivers and streams should typify the scenic New England heritage.

Recreational Natural Landscape River and Streams

Those rivers or streams which are readily accessible by road or railroad, which may have undergone diversion or impoundment and which may have some development along their shorelines. These rivers and streams should provide exceptional river recreation opportunities.

Recreational Urban Rivers and Streams

Those rivers or streams or sections of rivers or streams whose shorelines may be predominantly man-influenced (agricultural, urban and suburban) but are still suitable for intensive recreational use. Said rivers and streams should be readily accessible to urban areas and may include impounded areas which are usable for recreational purposes.

After a river is studied, using the criteria set out in the five classifications, it is either dropped from consideration or classified. Once classified, the river is automatically considered a top priority for protection and is proposed for designation.

At this point the river is further studied to decide if it should be selected for designation. If so selected, DEM forms a river advisory committee, composed of representative local and regional interests. With the assistance of the advisory committee, DEM develops a management plan and protective order for the river. The process of creating the plan brings together river abutters, recreationists, local officials, and State agencies. This encourages localities to coordinate plans for the river and gives them an opportunity to influence State action on the river.

After a management plan is developed, protective orders are generally written as one means of implementation. These orders regulate the types and intensity of development and activities within the river and along its banks. The orders are reviewed by local officials and commented-on by landowners at public meetings and at a public hearing. The final protective orders are recorded with deeds of riparian owners at the registry of deeds. When the orders are recorded, the river is formally designated.

Any landowner that is affected by a protective order may, within 90 days after receiving the notice, petition the superior court to determine whether such order unreasonably restricts the use of his property so as to become a taking. If the court finds a taking the protective order is made of no effect on that land.

The procedure set out above is the one contemplated by the act. The realities of the situation in Massachusetts have required the development of other protective measures by the DEM. These other measures are (1) an environmental review procedure and (2) local protection planning and designations. Most rivers that are classified will not be designated, so rivers that are classified are protected by the environmental review procedure. These rivers

are monitored closely by the SRP staff. The Massachusetts Environmental Policy Act process, A-95 "clearinghouse" review, Army Corps of Engineers 404 permitting, and Federal Energy Regulatory Commission hydropower licensing process are all scrutinized for projects that may affect classified rivers. Comments are made to the permitting agencies to help identify and mitigate adverse impacts. Under the second measure local scenic rivers can be designated. A local scenic river has State approved, but locally developed, protective mechanisms and/or a management plan that outlines a specific protection strategy. There must be a formal demonstration of local political support for the plan, through endorsement by at least half of the riparian towns on the designated river or river segment. If a river is designated as a local scenic river it also means that applications for (1) self-help and land and water conservation funds for river front acquisition, and (2) State purchase of agricultural preservation restrictions within the protected zone will receive additional priority.

In order to foster local protection of rivers a "Greenway Project" was initiated in 1980. A request for proposals is sent to watershed associations and other interested organizations to develop detailed protection plans for any of the rivers and streams proposed for designation. Using State funds matched by some local contributions or "in-kind" services, grants are awarded to local organizations to produce a plan. If a Greenway Plan is officially adopted the State may help in the qualification of donated conservation restrictions for acceptance by the IRS as a tax deductible gift.

Examples

The first protective order was issued in March 1979 for the North River. The North River was chosen as a demonstration project in 1977. The management plan was developed with the help of a local citizens advisory committee. The management plan is administered by the North River Commission, composed of selectmen or their designees for each town along the river. The commission was formed by a special act of the legislature.

Since 1979, four other rivers have been designated as State scenic rivers, and two others have been designated as local scenic rivers.

Under the Greenway Project, four Greenway plans have been completed on segments of the Charles and Merrimack, and on the Housatonic and Squannacook Rivers. The segments of the Charles and Merrimack Rivers were later designated as local scenic rivers.

Evaluations

The Scenic Rivers Program (SRP) provides effective protection of instream flow values once a river is designated and the protective orders and management plan are in place. This protection is even more effective if it is coupled with a locally initiated and implemented Greenway plan for acquisition of easements and public land.

The statute provides that protective orders may regulate "...altering of the river..." (MGLA Ch. 21, § 17b). The DEM has discretion in how they regulate an alteration, but the above quote from the statute clearly gives the agency the authority to regulate to maintain instream flow. Perhaps as important for protecting instream flow is that when a river is designated, or even just classified, public awareness of the river and its important features increases, thereby making any changes on the river politically more difficult.

The SRP is rather passive, because most of the rivers that have been classified will never be designated as State scenic rivers. If there is no public support for the designations the DEM will not designate the river. So, in most cases the SRP staff is relegated to commenting on projects that will affect classified rivers and working to help local organizations implement local protective mechanisms (J. Leonard, Program Coordinator, Scenic Rivers Program, Dept. of Environmental Management; pers. comm., 19 Dec. 1984).

The Greenway Project is a special program, pioneered in Massachusetts, of the Scenic Rivers Program. This program has shown real promise in creating protective corridors along rivers, because it overcomes many of the problems of the State river designation program. Proposed Greenway plans on any river or stream are locally directed and developed, and can potentially pull together a number of towns, cities, and local conservation organizations (such as watershed associations) into a cooperative effort to protect a river. The only State involvement is in providing funds to develop the plan. After the plan is developed DEM reviews it to determine whether to endorse the plan. If the plan is endorsed it becomes part of a local scenic river designation that gives the town and cities along the designated section priority in applying for State conservation funding. Greenways can provide effective protection of river corridors, providing a buffer zone that enhances scenic, recreational, and wildlife habitat opportunities associated with rivers.

In 1984, the Division of Fisheries and Wildlife initiated a program to further implement the Greenway planning documents. Local conservation organizations that initiated the Greenways plans are funded under State contracts to negotiate with landowners for preservation and protection of critical river lands.

Property owners may donate development rights to the nonprofit conservation group or directly to the State. Acquisition and less than fee purchases are funded through a special capital appropriations account administered by the Division of Fisheries and Wildlife. (R. W. Austin, Director, Dept. of Fisheries, Wildlife and Recreational Vehicles, Boston, MA.; letter dated 10 Jan. 1986).

The last important program of the Scenic Rivers Program is the River Outreach Program. Through this program the staff is attempting to educate people in order to develop river constituencies along priority rivers. In furtherance of the River Outreach Program the SRP, in conjunction with the New England Rivers Center, published a "Guide to River Protection in Massachusetts" and makes available speakers and a slide show.

LOW-FLOW AUGMENTATION

Opportunity

The Division of Water Resources (DWR) and the Water Resources Commission (WRC) may acquire land and water in order to establish water impoundment sites. (MGLA Ch. 21, §§ 9 and 39). One of the purposes for which these water impoundment sites may be acquired and operated is to augment streamflows at times of low flow.

Background

Two sections of chapter 21 of the General Laws provide agencies with the authority to provide means for low-flow augmentation.

First, DWR may acquire lands and waters to protect and conserve water impoundment sites that it deems necessary to meet the water resource needs of the Commonwealth for: (1) flood control, (2) low-flow augmentation, and (3) municipal water supply (MGLA Ch. 21, § 9a). The DWR may acquire these lands and waters by purchase, gift, lease, eminent domain, or otherwise using criteria established by the WRC. These criteria established the following factors as necessary before acquisition can be considered:

- The property, if not so protected, would be preempted by other uses before its development for water supply, flood control, or flow augmentation would take place.
- Endorsement by local board of selectmen or city council.
- Proposed project conforms to the Water Resources Planning Regulations (313 CMR 2.00), the Massachusetts Water Supply Policy Statement, and the Massachusetts Environmental Policy Act.

The criteria also established factors to determine the priority of acquisition:

- Priority shall be given to future reservoir sites with the potential to meet the Commonwealth's water resources needs for municipal water supply.
- Lesser priority shall be given to impoundment sites with potential to provide flood control and/or flow augmentation benefits in that order.
- Existence of a multicommunity agreement regarding the use of the proposed facility.
- Numbers of communities to be served.
- Imminence of preemption of future use of the site for water resources purposed by other land uses.

- Urgency of the need of the reservoir or site for flood control or low-flow augmentation purposes.

If the lands or waters are acquired by eminent domain the acquisition must be approved by the governor and the board of selectmen or city council of the town or city in which the lands are located.

Once lands or waters are acquired under this section they cannot be sold or transferred and no construction or water resources improvement can be made thereon without approval of the general court (MGLA Ch. 21, § 9a).

The second provision allows the WRC to take by eminent domain or acquire by purchase, gift or otherwise any land, water rights, or other easements in order to construct or expand reservoirs for the purpose of providing low-flow augmentation in time of drought and in such other times as rivers and streams may require additional water flow to carry off treated effluents. The only limitation on this power is that no taking may be made of water that is used for municipal, agricultural, or industrial water supply purposes (MGLA Ch. 21, § 39).

Evaluation

As the WRC has established that priority be given to municipal water supply, the program in MGLA Ch. 21, § 9A has been used entirely to date for purchasing land for future reservoirs or to expand existing reservoirs for municipal water supply.

The projects implemented to date indirectly assist in protecting and enhancing instream flow values by providing a water supply source that does not require the removal of water from a river basin's mainstream during low-flow periods (Kennedy 1985). There is the potential that this statute could be a means of providing water for rivers and streams during low flow, but until the priority criteria are rearranged it is highly unlikely that it will be used directly for low-flow augmentation.

The second statute (MGLA Ch. 21, § 39) has the primary purpose of providing water specifically to carry off effluents. If a reservoir were built or expanded for this purpose it would enhance instream flow even though its basic purpose is to assure adequate dilution of effluents. This statute has never been implemented. Again, the potential is there but it is yet untapped.

Note: Much of the information for this section was received through personal communication with C.F. Kennedy, Director and Chief Engineer, Division of Water Resources, Department of Environmental Management, and F. Pyle, Associate Civil Engineer, Assistant to the Director, Water Resources Commission, Boston, MA.

DIVISION OF FISHERIES AND WILDLIFE

Acquisition of Lands and Water

Opportunity. The Director of the Division of Fisheries and Wildlife (DFW) may acquire lands and water areas. Once areas are purchased they can be managed to promote and preserve instream flow values.

Background. The Director of the Division of Fisheries and Wildlife may acquire in fee by purchase, gift, devise, or exchange or he may lease, or with the consent of the landowners, control any land, water, or shore or the right to use same for the purpose of providing public fishing grounds (MGLA Ch. 131, § 6(1)), for the purpose of fish and wildlife management and propogations (MGLA Ch. 131, § 6(2)), or for the establishment of wildlife sanctuaries (MGLA Ch. 131, § 7). The director also has the authority to administer a nongame wildlife program including the promulgation of regulations and criteria for the purchase of lands critical to nongame wildlife and endangered species. (MGL, Ch. 131, § 5B). In order to administer this program and to acquire properties a separate dedicated fund has been established (Nongame Wildlife Fund) and credited with such Federal grants in aid and other Federal receipts as may be forthcoming, public and private gifts, grants, donations, and revenues generated as a result of a voluntary State income tax check off for nongame wildlife (MGL, Ch. 10, § 35D) (Austin, unpubl.). The director is required to promulgate rules and regulations for the nongame wildlife program and to develop criteria for the purchase of lands critical to nongame wildlife and endangered species (MGLA Ch. 131, § 5a).

The director is given the authority to make rules and regulations relative to the public rights, privilege, and use of lands, waters, and properties acquired under these provisions.

Evaluation. Once lands or water are acquired insteam flow values can be protected through management practices and assertion of riparian rights. The major drawback to this opportunity is monetary. There is the initial cost of acquiring the areas and the continual cost of maintenance and management. If the budgetary constraints can be overcome this can be an effective protector of instream flow for the segments of rivers or streams within land purchased by the DFW. Certainly, the preservation of instream flow is consistent with and enhances all of the purposes for which the DFW purchases land.

Natural Rivers

Recognizing the obvious -- that inland fish and wildlife need fresh water to live, in January 1985, the Division of Fisheries and Wildlife created a program to protect river and watershed lands. The objectives of the program are to protect:

- (1) rare, threatened, and endangered species inhabiting watershed lands that are facing development pressure;
- (2) rare, threatened, and endangered species inhabiting watershed lands anywhere in the State;

- (3) fish and wildlife inhabiting watershed lands that are facing development pressure;
- (4) watershed lands that offer a variety of low-impact recreation uses.

The division works with the Department of Environmental Management to fund local conservation groups to produce Greenway plans (see DEM, Greenways). Representatives from the local organizations do the initial fieldwork and some early negotiations with the landowners. Their work is followed up by the State, with the donation of development rights first being sought. Property owners may donate the rights to the nonprofit conservation group or directly to the State. Acquisition and less than fee purchases are funded through a special capital appropriations account administered by the Division of Fisheries and Wildlife. (Austin, unpubl).

Protecting Streamflow for Fish Spawns

Opportunity. It is illegal to manipulate stream flows so as to injure fish or fish spawns (MGLA Ch. 131, § 42). The DFW may ensure that instream flow is protected under this statute by prosecuting violators vigorously.

Background. It is illegal for a person to "...alter or manipulate or permit to be altered or manipulated the flows or water levels in any inland waters of the Commonwealth to the extent that it directly or indirectly injures or kills the fish or fish spawn therein, except as provided in section 48." (MGLA Ch. 131, § 42).

A violation under this statute creates a cause of action in tort, which may be prosecuted by the DFW. Damages for a violation of this statute can be as high as twice the amount of actual damages to fish or fish spawn.

Section 48, the exception mentioned above, provides that no person shall drain any pond, reservoir, or other body of water unless the person has given 10 days prior notice to the Director of the Division of Fisheries and Wildlife (MGLA Ch. 131, § 48).

Section 42 is administered by the Division of Fisheries and Wildlife, but apparently has never been used by this agency.

Evaluation. Section 42 has never been used to prevent the alteration or manipulation of a stream. This is probably because of the exception in section 48, which robs section 42 of much of its impact. Section 48 does not specify whether the DFW can prevent someone from draining a body of water. As written, section 48 allows a person to alter or manipulate a stream flow simply by giving 10 days notice and the director can do nothing about it. Section 42 as modified by section 48 is not capable of protecting instream flow in most cases (Report, 1981).

One argument that could be used to diffuse the effect of section 48 on section 42 is to show that the legislature in using body of water in section 48 did not mean water courses, such as streams or rivers. If this were so, then

section 42 would be viable and could be used to protect instream flow. In any event, the DFW or advocates of instream flow should press for a clarification from the courts of section 48 so that section 42 could be used.

Note: Much of the information for this section was received through personal communication with D. Hoover, General Counsel, and J. Rodriguez, Division of Fisheries and Wildlife, Boston, MA.

RIPARIAN WATER RIGHTS

Opportunity

Any individual, organization, or agency in Massachusetts that holds a riparian water right may promote and protect instream flow by asserting their rights in the stream.

Background

In the United States the riparian water rights doctrine has been divided into two versions: natural flow and reasonable use.

The natural flow version provides that every riparian owner is entitled to the natural flow of the stream regardless of circumstances. The reasonable use version provides that every riparian owner has the right to the natural flow of the stream and the reasonable use of water from the stream subject to the right of other riparians to make reasonable use of the stream.

Massachusetts has apparently adopted the reasonable use version of the riparian doctrine. The riparian right in Massachusetts has been described by the Supreme Judicial Court as follows:

Although the right to flowing water is incident to title to the land, there is no right of property in such water in the sense that it can be the subject of exclusive appropriation and dominion. The only property interest in it is usufructuary. The right of each riparian owner is to have the natural flow of the stream come to his land and to make a reasonable and just use of it as it flows through his land, subject, however, to the like right of each upper proprietor to make a reasonable and just use of the water on its course through his land and subject further to the obligation to lower proprietors to permit the water to pass away from his estate unaffected by such consequences as follows from reasonable and just use by him. [Stratton v. Mt. Herman Boys' School, 103 N.E. 87, 87 (Mass. 1913)]

A reasonable use is dependent upon the "...state of civilization, the development of the mechanical and engineering art, climatic conditions, the customs of the neighborhood and the other varying circumstances of each case"

[Stratton supra at 88]. A riparian owner may use water from the stream in such a way that it injures a downstream user and not be liable so long as his use is reasonable. Domestic uses are always considered reasonable.

If the water from a stream is used and diverted in such a way that it leaves the watershed the use is per se unreasonable. In this case, the only question that the court need answer is whether the diversion injures lower riparians. If there is no actual injury then there can be no recovery.

Evaluation

Each riparian owner has the right to the natural flow of the river or stream subject to other riparian owners' rights to reasonable use of the waters of the stream. The ability of lower riparians to enjoin an upper riparian for unreasonable use of water was established early. For example, in Sturtevant v. Ford [182 N.E. 560 (Mass. 1932)], a lower riparian obtained a decree enjoining an upper riparian's unreasonable impoundment of a brook. The court required the upper riparian to release a constant volume of four cubic feet per second of water into the brook and to pay \$10,000 for past damages. In an earlier case, Hittinger Fruit Co. v. City of Cambridge [105 NE 868 (Mass.1914)], the city of Cambridge had acquired a parcel of land on which it built an impoundment reservoir from which water was diverted to the city. This impoundment effectively stopped the natural flow of a stream upon which Hittinger owned land. Hittinger succeeded in obtaining a decree enjoining Cambridge from maintaining their dam so that it stopped the natural flow of this stream. The court gave Cambridge two choices, it could either remove the impoundment so as to let the natural flow resume, or it could release a constant flow to match the average daily flow. The city (certainly) chose the latter.

As demonstrated in the cases above, instream flow can be preserved by a riparian asserting his rights. The drawbacks to this method of protecting instream flows are twofold. First, you must own land that is riparian. Second, it often requires litigation for a lower riparian to successfully assert his right. Both of these factors can require substantial cost. Moreover, there is a substantial burden of proof to overcome in order to be successful in such a lawsuit. The plaintiff must often hire experts to testify to such matters as the amount of water used, the reasonableness of such use, the hydrology of the stream, and the unreasonableness or excessiveness of the defendants use. Further, the determination of reasonableness involves the exercise of much judicial discretion. All of this combines to make a court case expensive and risky.

Even so, the riparian water right is a well established right and the assertion of the right by a lower riparian may result in settlement and compromise before a trial is needed, as both sides take a risk in going to trial.

ENVIRONMENTAL POLICY ACT

Opportunity

The Massachusetts Environmental Policy Act (MEPA) (MGLA Ch. 30, §§ 62 to 62H, inclusive) provides the procedure for complying with the requirements of MGLA Ch. 30, § 61, which requires that all activities, works, or projects conducted by all agencies, departments, boards, commissions, and authorities of the Commonwealth be reviewed and evaluated to determine the impacts on the natural environment. Additionally, the agency must show that all feasible measures have been taken to avoid or minimize the impact (MGLA, Ch. 30 § 61). This statute provides the potential for review, evaluation, and mitigation, if feasible, for any activity regulated by the State, which impacts instream-flow values.

Background

MEPA is a broad-based statute, which overlays all activities in which the Commonwealth has a hand. The act covers not only direct agency actions, but also activities where agencies are indirectly involved, such as granting a permit for a project to a private individual or where a person seeks financial assistance from an agency (MGLA, Ch. 30 § 62).

The Executive Office of Environmental Affairs (EOEA) oversees MEPA. MEPA establishes a process for determining when an environmental impact report (EIR) is required and sets guidelines for the preparation and review of such EIR. Further, MEPA provides the procedural basis for complying with the mandate of § 61 (MGLA Ch. 30, § 61). Section 61 requires that all projects for which an EIR is required under § 62A be reviewed and evaluated so as to describe environmental impacts and further to show that all feasible means and measures will be used to avoid or mitigate "damage to the environment" (301 CMR § 10.01). Damage to the environment is defined in § 61 as:

any destruction, damage or impairment, actual or probable, to any of the natural resources of the commonwealth and shall include but not be limited to air pollution, water pollution, improper sewage disposal, pesticide pollution, excessive noise, improper operation of dumping grounds, impairment and eutrophication of rivers, streams, flood plains, lakes, ponds, or other surface or subsurface water resources; destruction of seashores, dunes, marine resources, underwater archaeological resources, wetlands, open spaces, natural areas, parks, or historic districts or sites. Damage to the environment shall not be construed to include any insignificant damage to or impairment of such resources. (MGLA Ch. 30 § 61).

The procedures for complying with MEPA are as follows. First, an Environmental Notification Form (ENF) must be filed with the Secretary of the Executive Office of Environmental Affairs and with all participating agencies. The ENF must describe the project and the possible environmental impacts (301 CMR § 10). After the ENF is filed the secretary has 30 days to decide if a full EIR needs to be prepared. If an EIR is not needed the permits are issued

and the project may commence. If an EIR is needed the proponent must prepare a draft EIR. This draft is circulated and commented on (310 CMR § 10.06). Then a final EIR is prepared and circulated and commented on. Once this is accomplished the secretary must pass judgment on the EIR as to whether it adequately and properly complies with the provisions of the statute (310 CMR § 10.07).

Any agency or person can challenge the decision by the secretary, the adequacy of the final EIR, or the decision that an EIR is, or is not, required (MGLA Ch. 30 § 62H).

The secretary has established categorical exclusions and inclusions, i.e., projects or activities that, because of their nature, either do or do not automatically require an EIR (MGLA Ch. 30, § 62E). The secretary has created four classes under this provision: (1) Class A, agency or agency funded projects that do not require an EIR unless the exclusion ceiling is exceeded; (2) Class B, which creates permit thresholds above which private proponents must file an ENF and possibly an EIR; (3) Class C, which establishes special low thresholds for triggering an EIR for areas of critical environmental concern and sensitive coastal areas; and (4) Class D, projects that require an EIR no matter what (310 CMR § 10.32, Appendix C). In addition, there is the so-called failsafe provision, which provides that on written request by 2 or more agencies or 10 or more persons, or at the initiation of the secretary, the secretary may require an ENF and EIR for any project that is categorically excluded (301 CMR 10.03 (6)(a)) (S. Mygatt, Executive Director, Environmental Review, Executive Office of Environmental Affairs, Boston, MA; pers. comm., 28 June 1985).

Example

An example of MEPA and its effect on instream-flow values is provided by the final EIR on the Pine Brook Impoundment and Alternative Water Supply Improvements Project.

The MEPA review concerned a proposed project by the City of Brockton to find an additional source of water after experiencing a severe water shortage. The project would transfer water from the Pine Brook, a tributary of the Jones River. A storage reservoir would be constructed on the Pine Brook with water being diverted from this reservoir to Brockton's present supply reservoir, Silver Lake. Any water diverted and not consumed would end up in the Tauton River in a different basin.

The proponent of this project was required by the EOEa to prepare an EIR, including a discussion and analysis of the base flow, fisheries, and water quality of the Jones River.

Evaluation

MEPA will not in and of itself protect any instream flow values. Its purpose is to heighten the degree of scrutiny of projects and to assure that

the mandate of section 61 is followed. MEPA gives citizens and agencies an opportunity to review, comment on, challenge, and provide alternatives to any activity that threatens the natural environment.

MEPA requires that an agency show that all feasible measures have been taken to avoid or minimize environmental impacts. To ensure that this has been followed requires awareness on the part of agencies and interested persons and participation in the MEPA process. MEPA will protect instream flow values if those persons who are interested in these values become involved in the MEPA process.

ENVIRONMENTAL PROTECTION STATUTE

Opportunity

Any 10 or more persons or any political subdivision of the Commonwealth may bring suit to force compliance with any environmental statute, ordinance, by-law, or regulation (MGLA Ch. 214, § 7A). This statute gives advocates of instream-flow the ability to protect and preserve instream flow values when an agency, city, town, or person is not complying with the law.

Background

This statute establishes standing for any 10 or more persons domiciled within Massachusetts or any political subdivision of the Commonwealth to bring suit to restrain any person's actions that are damaging or are about to cause "damage to the environment", provided that the damage caused or about to be caused constitutes a violation of an environmental statute, ordinance, by-law or regulation (MGLA Ch. 214, § 7A).

"Damage to the environment" is defined broadly in the statute as "any destruction, damage, or impairment, actual or probable, to any of the natural resources of the commonwealth Damage to the environment shall not include any insignificant destruction, damage or impairment to such natural resources" (MGLA Ch. 214, § 7A).

The courts have interpreted this statute broadly. The court in City of Boston v. Massachusetts Port Authority [308 NE 488, 1974], found that this statute can be used to enforce both substantive prohibitions of environmental laws and the procedural requirements of these same laws. What this means is that this statute can be used to force agencies and individuals to comply with the procedural requirements of a statute absent a showing of actual damage to the environment.

In order to get relief under this statute the plaintiffs must give notice to: (1) the agency responsible for the statute, ordinance, by-law or regulations; (2) the attorney general; and (3) the person about to violate or violating the statute, at least 21 days prior to commencement of the suit. This notice may be dispensed with if the plaintiff demonstrates to the court that irreparable damage is imminent. In this case the court may issue a temporary restraining order.

This statute can be used to enjoin any person. Person is defined as any individual, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or any political subdivision thereof, any administrative agency, or any other legal entity. As is evident, this statute can be used to enjoin anybody not following the guidelines of the environmental laws in Massachusetts.

This statute also provides that it does not derogate or diminish any common law or statutory right or remedy that may be available to any person but instead is in addition to any such right or remedy.

Evaluation

The right created in this statute provides a means for persons to oversee the implementation of the environmental laws of the State. This check on administrative processes is in addition to any right or remedy provided in the Administrative Procedures Act (APA) or under common law. Through this statute persons can ensure that instream flow values are protected to the maximum extent provided in the environmental laws of the State.

There are some drawbacks to the use of this statute. First, the protection that can be attained from this statute is limited to the protection provided in the environmental laws. Second, it requires litigation, in the absence of a settlement. For individuals this can be expensive and time consuming and therefore a deterrent to these actions.

INTERVENING IN AGENCY ADJUDICATIONS

Opportunity

Any 10 persons may intervene in any adjudicatory proceeding before an agency in which damage to the environment is or might be at issue (MGLA Ch. 30A, § 10A). By intervening in administrative proceedings that may impact instream flow values, advocates of instream-flow protection may guarantee that instream flow values are completely addressed, that all possible mitigation measures are proposed, and that proper consideration is given to these values in the agency's decision.

Background

The Massachusetts statutes have created a right of intervention for concerned citizens in any adjudicatory proceeding before an agency in which "damage to the environment", as defined in chapter 214, § 7A (see last section), is or might be at issue (MGLA Ch. 30A, § 10A).

The intervention must be by 10 persons or more and will be limited to the issue of damage to the environment and the elimination or reduction of the damage. In addition, any intervenor may introduce evidence, present witnesses and make written or oral argument provided the material is not irrelevant or

repetitive. The intervenor is considered a party to the original proceeding for purposes of notice and any other procedural rights applicable to the proceeding, including the right of appeal.

Evaluation

This statute is an important tool for advocating instream flow values. It provides the opportunity for interested parties to be involved in any administrative proceeding that may impact instream flow values. By fully exercising the rights created by this statute it can help ensure that all issues dealing with instream flow are fully addressed and considered by the agency in its decision.

It is important for the advocate of instream flow values to use this statute because it allows involvement early in the decision-making process. Like the environmental protection statute the possible protection is limited to that provided by the statutes. But unlike the environmental protection statute there is no need for litigation. The only expenses involved are the time and money involved in preparing comments and arguments and the cost of arranging for witnesses to appear before the agency.

Certainly, the use of this statute will not always result in protection of instream flow values, but it is important that these issues be presented early in the decision making process so that proper consideration is given instream flow values in the agency's decision.

CONSERVATION RESTRICTIONS

Opportunity

Public and private entities in Massachusetts may acquire and hold conservation restrictions in land and water areas. Once acquired, a conservation restriction can provide complete protection for instream flow values along that segment.

Background

A conservation restriction (CR), in Massachusetts, must be distinguished from common law restrictions, such as conservation or scenic easements. Both the common law restrictions and Massachusetts' conservation restrictions are used to protect the natural, scenic, or open conditions of land and water areas, and both can accomplish this by forbidding or limiting any or all construction, excavation, dredging, surface use, or any act detrimental to retention of the land or water areas in a natural state. Also, they both may be acquired by purchase, gift, will, or eminent domain. They differ in that conservation restrictions may be held and enforced by a greater number of entities.

Under the common law an easement was only enforceable if the parties were in privity of contract at the formation of the easement, or if the easement

benefited another particular parcel of land. The Massachusetts legislature, in order to encourage the use of conservation restrictions, abrogated the above common law restrictions in two cases: (1) if the CR is held by a city, town, or commission of a city or town and the CR is approved by the Secretary of Environmental Affairs, or (2) if the CR is held by a charitable corporation or charitable trust and it is approved by the city or town in which the land or water area lies, and it is approved by the Secretary of Environmental Affairs (MGLA Ch. 184, § 32). Under the statute the holder of the CR may also reasonably inspect the premises restricted to ensure compliance. Compliance may be enforced through injunctions, which is sometimes but not always true with a common law restriction.

The statute also contemplates that a CR may terminate. Before a CR may be released there must be a public hearing and the release must be approved by the same governmental bodies that originally approved the CR's establishment.

In approving establishment or release of a CR under the statute, the city or town and Secretary of Environmental Affairs must consider at a minimum the following criteria: (1) the public interest; (2) any Federal, State or local programs that the restriction would further; and (3) any State, regional or local land-use or development plan.

In order to assist private and governmental land-use planning efforts, the Massachusetts statute provides that a city or town may file a public restriction tract index for the purpose of providing a composite of the tracts subject to outstanding restrictions. (MGLA Ch. 184, § 33). This can be an important tool for coordinating action on a river.

Evaluation

A conservation restriction or enforceable common law restriction along or in a stream can provide complete protection for instream flow values along that segment. This could be done, for example, by restricting a riparian landowner's riparian water right, thereby restricting his ability to use and consume water. Upstream and downstream users, however, are still free to alter the stream within the confines of the riparian water rights doctrine (see section on riparian water rights) and applicable statutes. Therefore, the acquisition of a restriction needs to be closely scrutinized to determine if it will add anything to the protection of instream flow.

A conservation restriction would be most effective if an extended stretch of river could be shielded from development and depletion. But the costs of obtaining such an extensive interest is beyond the means of any single town, city, or charitable organization. Certainly, some sort of cooperative or coordinated effort is called for.

In most cases, it probably is not necessary to purchase a large number of conservation restrictions to protect a large segment of a river. There are a number of other mechanisms, both State and local, that in combination with conservation restrictions could be effective in protecting large segments of

ivers. One such combination could be provided by using State wetland restrictions and municipal zoning in combination with conservation restrictions. Under this scenario conservation restrictions would only need to be purchased when it was impossible to protect a particular parcel with wetland restrictions or through zoning. (see section on Wetland Restrictions and Zoning).

There is also a State grant program that could possibly help in the purchase of conservation restrictions. This is the Self-Help Grant Program, which can be used to reimburse up to 80% of the cost of acquiring property or interests therein for conservation purposes (Lerner 1985a). See the section on conservation commissions for more on the Self-Help Grant Program. (J. Lerner, Director, Division of Conservation Services, Boston, MA; pers. comm., 28 June 1985).

THE ZONING ACT

Opportunity

The Commonwealth's municipalities can regulate land and water use for pollution prevention, floodplains, wetlands, and the development of the natural, scenic, and aesthetic qualities of the community under the Zoning Act (MGLA Ch. 40A, §§ 17, inclusive). Municipalities can exercise their zoning powers to protect instream-flow values within their boundaries.

Background

The present Zoning Act (MGLA Ch. 40A) replaced the Zoning Enabling Act in 1975. The purpose of the new Zoning Act was set out in the legislation. The act states in part:

Said regulations may include but are not limited to restricting, prohibiting, permitting or regulating:

- 1) uses of land, including wetlands and lands deemed subject to seasonal or periodic flooding;

* * *

- 3) uses of bodies of water, including water courses;

* * *

- 5) areas and dimension of land and bodies of water to be occupied or unoccupied by uses and structures, courts, yards, and open spaces;

* * *

- 8) the development of the natural, scenic and aesthetic qualities of the community, (1977 Mass. Acts Ch. 829 § 4).

None of these specific purposes were set out in the old Zoning Enabling Act and most likely were added in specific reaction to the case of Turnpike Realty Co. v. Dedham [362 Mass. 221, 284 N.E.2d 891 (1972), cert. denied, 409 U.S. 1108 (1973)]. Turnpike dealt with a zoning by-law that created a flood-plain district in which construction without a permit was forbidden. The by-law had four stated purposes: (1) the preservation of the groundwater table, (2) the protection of persons and property from flooding, (3) the protection of the community from the costs that may be incurred due to building in flood prone areas, and (4) the conservation of natural conditions, wildlife, and open spaces.

The court found that the first three purposes promoted the general welfare and were within the authority granted under the Zoning Enabling Act. The court found the fourth purpose to be just an aesthetic consideration and therefore not within the powers granted by the Zoning Enabling Act. The legislature, several years after Turnpike, rewrote the Zoning Act and specifically added such aesthetic considerations to the zoning authority. The long-term significance of these changes is not yet evident as no court has ruled on the use of aesthetic considerations for a zoning law.

Substantively, Massachusetts municipalities have broad authority to zone for such things as wetlands protection. Even so, the use of zoning presents numerous procedural obstacles. A zoning proposal must be submitted to the city council or board of selectmen who will forward it to the local planning board. The planning board, after complying with the substantial notice requirements in the Zoning Act (MGLA Ch. 40A, § 5) holds a public hearing on the proposal and then submits its report to the city council or town meetings. At the meeting the proposal must be passed by a two-thirds majority vote. A zoning proposal that does not receive the necessary two-thirds vote may not be considered again for two years, unless it has received a favorable report from the planning board. Finally, both zoning and nonzoning town by-laws require the approval of the State Attorney General (MGLA Ch. 40 § 32).

In addition to the above, zoning by-laws have two major postenactment procedural limitations. First, the Zoning Act provides exemptions from zoning by-laws for those who can prove prior nonconforming uses of their property (MGLA Ch. 40A, § 6). Second, the act has a special appeal process through a local zoning board of appeals. If an applicant is denied special permits on variances from the board of appeals he can still obtain broad de novo review in superior court (MGLA Ch. 40A §§ 12,14).

Evaluation

Zoning by-laws are an important tool in protecting instream flow values. This power has traditionally been recognized as an efficient land-use planning tool. With the rewriting and expansion of the Massachusetts Zoning Act in the mid-70's the municipalities in this State may now zone to regulate water uses and to develop and preserve the natural conditions and aesthetic values of the community. Under this broad grant of power a municipality certainly has the authority to zone to regulate water use to maintain flow in rivers or streams as part of preserving the natural condition or aesthetic values of the community.

The power of a municipality to zone is not unrestricted. A zoning by-law cannot be so restrictive that it would constitute an unconstitutional taking. Exactly what constitutes a taking must be decided on a case-by-case basis, but some general principles were set down by the recent case of Moskow v. Commissioner of Environmental Management [427 N.E.2d. 750 (Mass. 1981)] (This case is discussed more fully in the section on Wetland Restrictions.) The court in that case set out a very liberal view of the taking principle. The court stated that government regulations may deprive an owner of uses of his land, even the most beneficial use, as long as there are some residual uses left. Based on this statement, municipalities should be encouraged in the use of their zoning authority as they can severely limit a landowners use of his land and water as long as some uses are left to him. So a zoning by-law could possibly restrict water uses that are consumptive and not be considered a taking as long as the riparian owner could use the water for other purposes.

Even though zoning by-laws have great potential in instream flow protection, there are several factors that reduce their efficacy: (1) zoning by-laws only protect the stream within the town or city borders, (2) procedurally, a by-law is often difficult to guide through the enactment mechanism, and 3) the granting of variances and nonconforming uses reduces the impact of the by-law. The first of these factors may be overcome by coordinated action between cities and towns along a river. (This is discussed in the next section on Home Rule Powers.) The second factor may be mitigated somewhat by using a city's or town's Home Rule Powers (see next section) to pass ordinances or by-laws that have the same effect as a zoning by-law. The third factor is probably the hardest to mitigate because the Zoning Act makes the granting of nonconforming uses mandatory (MGLA Ch. 40A § 6). Variances can be mitigated because they are granted only after public hearings and conditions as to time and use may be imposed as safeguards.

Even with these drawbacks the zoning authority must be considered an important tool for protecting instream flow values in Massachusetts. This is because municipalities are critical in the political scheme of Massachusetts. Counties are virtually nonexistent and the State oftentimes is ineffective because of budgetary constraints or political considerations. The State legislature in expanding the Zoning Act is also indicating that the cities and towns are critical to the preservation of these values. Otherwise, why else would they have given cities and towns the authority to regulate water uses and to develop and preserve the natural conditions and aesthetic qualities of the community through zoning (Dawson 1978).

HOME RULE POWERS

Opportunity

Under home rule powers towns and cities can adopt local by-laws and ordinances to "...exercise any power or function which the general court has power to confer upon it, which is not inconsistent with the constitution or laws enacted by the general court..." (Mass. Const. Amend. Art. LXXXIV, § 6).

The cities and towns of Massachusetts can use these home rule powers to pass by-laws and ordinances protecting instream flow values within their town limits.

Background

Massachusetts' municipalities received home rule powers in 1966, through the adoption of Article 89 of the amendments to the State constitution. Section 6 of this amendment defines the substantive powers granted:

Any city or town may, by the adoption, amendment, or repeal of local ordinances or by-laws, exercise any power or function which the general court has power to confer upon it, which is not inconsistent with the constitution or laws enacted by the general court in conformity with powers reserved to the general court by section eight, and which is not denied, either expressly or by clear implication, to the city or town by its charter. This section shall apply to every city and town, whether or not it has adopted a charter pursuant to section three.

Section 6's requirement that municipal by-laws and ordinances not be inconsistent with State law amounts to a major reservation of power in the State legislature, i.e., the legislature can pass a law pre-empting the field if it feels local by-laws are inappropriate. This reservation amounts to a veto power in the legislature. Also, a copy of the by-law or ordinance must be submitted to the attorney general for his approval. If the attorney general takes no action within 90 days, the by-law or ordinance becomes effective without his approval.

Once a by-law or ordinance is in place an aggrieved party may appeal to the superior court under either the Declaratory Judgment Statute (MGLA Ch. 231 A) or, for certiorari review, to the same court under Massachusetts General Law (Ch. 249 § 4).

The use and restrictions on this power are demonstrated by the case of Lovequist v. Conservation Commission of the Town of Dennis [393 N.E.2d 858 (Mass. 1979)]. This case dealt with a by-law that established a permit system for wetland development that closely paralleled the State Wetland Protection Act (WPA). The town by-law had three basic differences from the WPA: (1) the wetland values that the conservation commission must seek to protect were much broader, i.e., they included erosion, wildlife, recreation, and aesthetics, in addition to the values in the State act; (2) the commission was given the explicit authority to prohibit wetlands development; and (3) the appeal procedure was different, i.e., appeal was only by certiorari to the superior court, rather than a de novo review on appeal to the Department of Environmental Quality Engineering (DEQE), which is provided under the Wetlands Protection Act.

This by-law was challenged by a developer when his application to construct an access road across a cranberry bog was denied under the by-law. The plaintiff asserted two basic arguments: (1) that the by-law was void under the home rule powers because it was inconsistent with both the Zoning Act and the Commonwealth's Wetlands Protection Act, and (2) that such denial constituted a taking.

The court, for the following reasons, found these arguments unpersuasive and upheld the commission's order. The by-law was found to be consistent with the Zoning Act because: (1) the town of Dennis, in enacting the by-law, clearly intended that it be a nonzoning by-law; (2) Dennis had no history of wetlands zoning; (3) although wetlands protection is a purpose for which a town may zone, it is not a traditional zoning purpose; and (4) the system of implementation employed by the Dennis wetland by-law differs significantly from that of a typical zoning by-law. Its impact on land use followed only from its dominant purpose to protect wetlands values. It did not prohibit or allow, on its face, any particular land use. Rather, it specified that permission be from the commissions based on factual circumstances surrounding individual applications.

As to the Wetlands Protection Act, the court stated that the WPA was meant to provide only minimum standards for the protection of wetlands and that clearly this by-law furthers rather than derogates from the legislative purpose embodied in the Wetlands Protection Act. The court also found the difference in administration and judicial review of no consequence. As long as a party was not denied the right of review there was no problem and here any decision of the commission was reviewable as an action in the nature of certiorari under MGLA Ch. 249, § 4.

The taking argument was summarily dismissed because no evidence was presented as to what loss there was and even if the property could not be used for this one purpose the court did not feel it had lost all value so as to rise to the level of a taking (supra at 866).

Evaluation

The home rule powers can be an effective way for municipalities to protect instream flow values. As the court made clear in Lovequist, a town can pass by-laws that regulate land use and not be subject to the procedural complexities of the Zoning Act. Additionally, the fact that the general court and attorney general have veto power over any municipal by-law seems to have made the courts willing to let the cities and towns of Massachusetts go further with by-laws and ordinances than has been the case in most other States (Brown 1980).

Home rule and zoning by-laws and ordinances take on even greater importance considering the legal structure in Massachusetts, which has traditionally emphasized action at the local level rather than at the county or State level. Therefore, it is critical for the protection of instream flow values, that municipalities take the initiative and exercise their power to pass ordinances and by-laws that will protect those values.

One major drawback to the home rule powers, just as with the zoning powers, is that no single town can protect large segments of river itself. It requires a coordinated effort between many towns or cities along a river to provide true protection. In Massachusetts, there is enabling legislation that provides a framework for just such a cooperative effort. Massachusetts General Law ch. 40B provides the structure for towns and cities to form regional planning districts. Within these regional districts towns and cities may work together to promote orderly development of large areas within their districts and thereby provide protection for large segments of rivers and streams.

Certainly, most uses of zoning or the home rule powers are in controlling land uses, which promotes such instream flow values as wetlands, river and stream beds, and the habitats surrounding rivers and streams. But the authorizing legislation for the zoning powers and the authorizing legislation for the home rule powers go further than just land use. The zoning law, specifically, and the home rule law, implicitly, give municipalities the power to regulate water uses, and the natural and aesthetic values of the community. This clearly presents cities and towns with the power to regulate water use so as to protect instream flow in rivers and streams. Therefore, a city or town may effectively protect and preserve instream flow values through use of their legislative powers to pass zoning by-laws and home rule ordinances and by-laws.

CONSERVATION COMMISSIONS

Opportunity

Any city or town may establish a conservation commission for the promotion and development of the natural resources and for the protection of watershed resources (MGLA Ch. 40, § 8C). Streams and rivers within a municipality may be protected by the combined efforts of a conservation commission and the municipalities legislative body.

Background

Conservation commissions are simply arms of a municipal legislature organized to address environmental concerns. The members are appointed by the mayor or city manager in cities or by the selectmen or town manager in towns. The commission is empowered to conduct research into local land areas and must seek to coordinate the activities of unofficial bodies organized for similar purposes. The commission may purchase lands or receive gifts, bequests or devises of personal property, or interests in real property.

One of the most important functions of a conservation commission is its role under the Wetlands Protection Act. Also, any city or town that has established a conservation commission may apply to the State for funds from the Self-Help Grant Program. The Self-Help Grant Program may provide a city or town that has a conservation commission up to 80% reimbursement for funds spent for conservation projects. In order to get money from the program, a city or town must apply to the Executive Office of Environmental Affairs. Not

all projects are approved for reimbursement because of limited money in the fund or they don't meet the criteria. Each project is rated and those with the highest rating are reimbursed (Lerner, pers. comm.).

The last important function of conservation commissions is in environmental education. The commissions have a variety of communication channels available to communicate important environmental issues.

Evaluation

Conservation commissions provide several different mechanisms for protecting instream flow values.

First, commissions are required to research local land areas. Inherent in this is the ability to evaluate land-use practices that affect instream flow. Through this process the areas that are most in need of protection can be identified. Once identified, the commission can purchase the land if it has funds available, or it can request a town meeting to discuss the purchase of the area or some lesser interest in the area, such as a conservation restriction.

Second, if a city or town has a conservation commission, it has two important advantages under State law. It is directly involved in the important decision-making process under the WPA and it may apply for reimbursement of monies spent to acquire land for conservation purposes under the Self-Help Grant Program.

Finally, the last important function of a commission is in its environmental education function. Commissions are authorized by the statute to use various communication channels to advertise and disseminate information about important environmental issues affecting the city or town. By utilizing this authority the public can be educated on the need to protect and preserve instream flow, which in turn can increase the political pressure to preserve these same resources.

OPPORTUNITIES UNDER THE PUBLIC TRUST DOCTRINE

Opportunity

Each State owns certain property that it holds in trust for public uses. It holds this property not as a proprietor, free to sell or exchange it at will, but as a government, which must consider and benefit the entire public in any transaction involving public trust property. The responsibility of the State as trustee is the heart of the public trust doctrine. Under this doctrine, sale or grant of this trust property to private parties can be examined very carefully by the courts, which may invalidate such sales or grants if the rights of the public have been slighted.

Background

In the United States, the public trust doctrine has been applied to certain lands, waters, and wildlife. The doctrine requires each State to regulate and control public trust property within its borders in a manner consistent with the public interest. Moreover, the doctrine creates a legal right in the general public of each State, who may seek enforcement of the doctrine through the courts, should the trust be violated.

There are several ideas arising out of case law dealing with public trust property that lend support to the public trust doctrine: (1) certain interests or resources are so important to every citizen that this free availability is imperative; (2) some resources are so particularly the gift of nature that they should be preserved for use of the entire population; and (3) certain uses have a particularly public nature that makes exclusively private use inappropriate (White 1983).

Certain lands are considered to be public trust lands. State courts, soon after the American Revolution, enunciated the principle that land underlying navigable water was inalienable to private parties. For these lands, the Federal test of navigability is employed, which is a "navigability in fact" test: those rivers that are used or could be used as highways for commerce in the customary mode of trade or travel on water [The Daniel Ball, 77 U.S. 557 (1871)]. Today, however, the power to alienate public trust lands and the effect of alienation of such lands is governed by the laws of the various States. In the courtroom, four basic limitations have been placed on the power of a State to dispose of public trust property:

- (1) In construing grants by a sovereign (the various States) to private persons, a court will observe a presumption against the separation for the sovereign power of title or dominion to navigable waters and the lands beneath;
- (2) Grants by a State to private ownership remain subject to the paramount Federal commerce power;
- (3) Grants of submerged lands must not interfere either with valid public uses or with valid private riparian rights; and
- (4) The State must maintain its sovereign control over enough of the trust lands so as to protect all public interests; the State may relinquish control over a portion only when such real location does not jeopardize the public interest in the remaining trust property (Althaus 1978).

The leading case, often called the lode star case of the public trust doctrine, is a United States Supreme Court Case: Illinois Central Railroad company v. Illinois [146 U.S.387 (1892)]. The case arose after the Illinois legislature, in 1873, repealed their 1869 "fee simple" grant of the entire Chicago waterfront (about 1,000 acres of submerged land). Although the Supreme Court did not prohibit the disposition of public trust lands to private

parties, it did hold that the State could not abdicate its trust over property in which all the people of the State had an interest, so as to leave the property entirely under private control.

Hence, a State must at least retain regulatory power over this public trust property. The Court declared that the title, which a State holds, of public trust property is:

...different in character from that which the State holds in lands intended for sale. ...It is a title held in trust for the people of the State that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein free from the obstruction of interferences of private parties Illinois Central Railroad Company v. Illinois [146 U.S. 387 (1892)].

Under this case, when a State holds a resource that is available for free use of the general public, a court will be displeased with any governmental conduct that will either reallocate that resource to more restricted uses or subject public uses to the self-interest of private parties.

With regard to waters, generally, public trust waters are navigable waters; "navigable" waters equating with public waters and "nonnavigable" waters equating with private waters. The State must control its navigable (public trust) waters with rules and regulations. All privileges or uses granted in public waters are subject to State control.

For determining which waters are "navigable" (for the purpose of imposing the public trust on waters) each State can (and does) apply its own test of navigability. Some States have adopted statutory definitions of navigability (e.g., in Texas a nontidal stream is navigable if it retains an average width of 30 feet from its mouth up [Diversion Lake Club v. Heath 126 Tex. 129, 86 S.W.2d 441, 444 (1935)]). Other States use a floating log test, where water is navigable if it has the capacity to float logs to market (Wassenberg 1985). Still others use a recreational or pleasure boat test, where waters are navigable if they are capable of use for boating (even pleasure boating). These definitions of navigability are the major ones used by States today.

Traditionally, three public uses have been recognized as protectable under the public trust doctrine in "navigable water": navigation, commerce, and fishing. To these traditional categories have been added activities "incident" to navigation, commerce, or fishing, e.g., recreational purposes, which do not impair traditional public uses. Additionally, in some instances public rights of passage on and access to navigable waters have been upheld (for discussion of recent State court decisions see Wassenberg 1985).

Generally, United States Courts have been willing to interfere in four types of situations for the purpose of upholding the public trust: (1) where public property has been disposed of at less than a fair market price when nothing indicates an obvious reason for a subsidy; (2) when authority to make

resource use decisions has been granted to a private interest that may subordinate public uses to the private interest; (3) where broadly based public uses have been reallocated to private uses or to narrow public uses; and (4) where the resource is not being used for its natural purposes (White 1983).

Protection of instream flow values by implementation of the public trust might take the form of injunctive relief, instigated by the public to maintain adequate streamflows for the public's use (boating, swimming, fishing). Or perhaps public agencies, on behalf of the public, might assert a right to protect and maintain adequate streamflows. Instream flow values might be further protected where streamflows are so low as to endanger fish or wildlife, which are also public trust resources (Freeman 1985).

THE PUBLIC TRUST DOCTRINE IN MASSACHUSETTS

A public trust in certain waters of Massachusetts was recognized early. The Colonial Ordinances of 1641 and 1647 stated:

Every inhabitant who is a householder shall have free fishing and fowling in any great ponds, bays, coves and rivers, so far as the sea ebbs and flows, within the precincts of the town where they dwell, unless freeman of the same town or the General Court have otherwise appropriated them.....

It is declared. That in all creeks, coves and other places, about and upon salt-water where the sea ebbs and flows, the proprietor of land adjoining, shall have propriety to the low-water mark, where the sea doth not ebb above a hundred rods, and not more wheresoever it ebbes further. Provided that such proprietor shall not by his liberty, have power to stop or hinder the passage of boats or other vessels, in or through any sea, creeks, coves, to other mens houses or lands (Ordinances of 1641 and 1647, Book of the General Laws and Liberties, at 50 (1649)).

This ordinance provides several points that are still good law in Massachusetts. The first is that "navigable waters", to which the public trust doctrine attach, are those waters subject to the ebb and flow of the tides, and great ponds over 10 acres in surface area. The inland waters, in general, are not subject to considerations of the public trust doctrine. Second, the ordinance sets out three important values that are protected by the public trust: fishing, fowling, and navigation. Finally, it establishes one of the basic principles of the public trust doctrine, that private owners may acquire public trust property but that property will still be subject to the public rights under the doctrine.

Massachusetts' early-on adopted the English view that "navigable waters" included only tidal waters. The only expansion of the English view was to also include great ponds, whether or not they were subject to the ebb and flow of the tide [Commonwealth v. Vincent, 108 Mass. 441 at 447 (1871)].

Not all tidal waters are included either. The tidal water must be navigable for some purpose. The court in Attorney General v. Woods [108 Mass 435, at 440 (1871)] stated: "The purpose of the navigation is not the subject of inquiry, but the fact of the capacity of the water for use in navigation." In this case the court found the river navigable even though at low-flow periods it was only two feet deep.

The public trust in navigable waters is not limited to protecting the rights of fishing, fowling, and navigation. The Supreme Judicial Court in Home for Aged Women v. Commonwealth [202 Mass 422, 89 N.E. 124 (1909)] stated that the public retains rights under the public trust for all necessary and proper uses expressed by State law. One commentator suggests that this certainly indicates that the State has the right to protect the public health, and to prevent flooding, erosion, and water pollution under the public trust doctrine (Dawson 1978).

Additionally, the protection of the public trust rights of fishing, fowling, and navigation has been codified in the license granting procedure under the Chapter 91 program (see section above on waterway licenses).

The public trust rights in tidal waters is well established in Massachusetts and provides ample opportunity for protection of instream flow values in these tidal rivers and streams.

The public trust doctrine goes beyond just tidal waters. It is also applicable to other State held lands and water, such as parks and wildlife sanctuaries. The Massachusetts courts have been leaders in developing a workable doctrine to protect these lands and waters for the purpose for which they were originally acquired.

The seminal case on this subject was Gould v. Greylock Reservation Commission [350 Mass. 410, N.E.2d 114 (1966)]. In this case the legislature authorized a special Authority to construct and operate an aerial tramway on Mount Greylock, a State park. The legislature also authorized the leasing of land to the Authority for other purposes. The commission that managed Mount Greylock proposed to lease 4,000 acres of the mountain to the Authority to construct and operate a ski area. Before the project could go forward five citizens brought suit, as beneficiaries of the public under which the reservation was said to be held, trying to invalidate the lease of the 4,000 acres. The court held the lease invalid on the grounds that it was in excess of the statutory grant of authority.

The court in setting down the decision did not invalidate the act of the legislature on the sole ground that it involved a modification of the use of public trust land. For it is possible to modify the use of public trust land and not violate the public's rights. The court realized they needed to get at the real problem, which is modifications of public trust lands or waters by low-visibility policy decisions. In order to get at this problem the court imposed a presumption that the legislature in dealing with public trust lands or water is acting to maintain the broadest public use. This presumption may only be overcome if the legislature clearly and expressly indicates that they

are doing otherwise. So, for example, in the Gould case the legislature only stated in very general terms that land could be leased to the Authority. They did not specifically grant authority to lease land for a ski area. Therefore, under the presumption created by the court this would be improper because leasing of this many acres to a private entity narrows the public use without specific authorization from the legislature (Sax 1970).

What this interpretation does is force the legislature to openly and expressly address the important public trust issues in their decisions. This gives advocates of public rights the opportunity to lobby for changes or mitigation before the expenditure of resources has reached a point of irreversibility.

Thus, Massachusetts law provides ample authority for invocation of the public trust doctrine to protect tidal rivers and streams and to protect any other lands or waters held by the State for the public. The Supreme Judicial Court has served notice to all concerned that it will view with skepticism any dispositions of trust lands or water and will not allow them unless it is perfectly clear that the dispositions have been fully considered by the legislature or agency.

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APPENDIX

IFIS*STRATEGIES DATA SET

The IFIS*STRATEGIES Data Set is a computerized information file that contains records on the subject of State and Federal water law, especially as those laws apply to the protection of instream uses of water. Records contained in the data set are summaries of statutes, court decisions, regulations, scholarly articles, and official decrees. The purposes of the data set are: (1) to provide rapid information searches for use in developing general background information on water rights, (2) to serve as general reference for planners and water users to begin a search for relevant statutes and guidelines, and (3) to maintain a resource for water managers who seek to develop instream use programs. Each record in the data set refers to a particular State, and contains a title, key words, abstract, citation, and cross-reference to other records. The data set can be searched by either State name or key word. The program allows the user to combine records into reports suitable for individual needs. For those who are not regular users of IFIS*STRATEGIES, the Instream Flow Group provides occasional custom searches of the data set on request.

For information on this data set, contact Berton L. Lamb, Administrative Analyst, Instream Flow Group (FTS 323-5321 or Commercial 303 226-9321).

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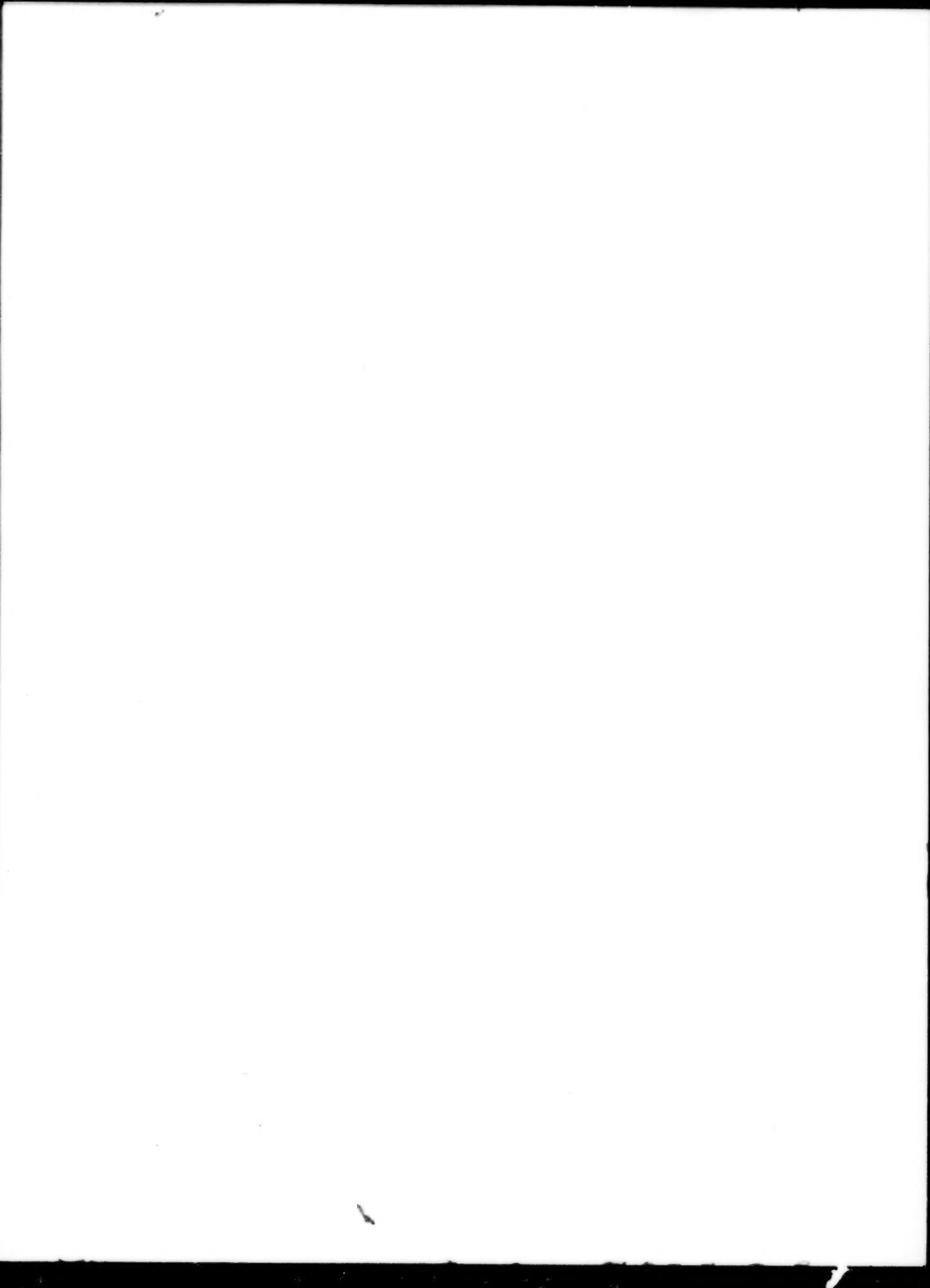
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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



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